Math Fact Multiplication Model Representations

A math resource designed and created to assist students in developing a better understanding of the physical modeling of multiplication

Blaine Helwig

October 2026

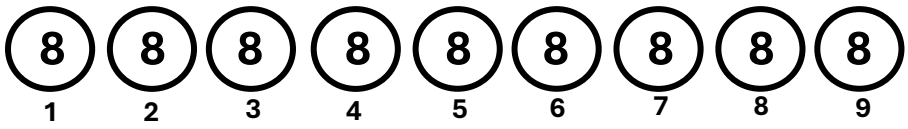
Math Fact Multiplication Model Representation – Introduction

This 9-sheet resource is subdivided into three progressive levels. Level 1 features multiplication facts with one factor between **1 and 3** (inclusive) – Pages 1 - 6. Level 2 contains a factor between **4 and 6** (Pages 7 – 12), and Level 3 focuses on a factor between **7 and 9** – Pages 13 - 18**.** Included at the end of the resource are short modeling for multi-digit multiplication computations like the math fact models from pages 1-18. However, before using this resource, teachers should explicitly teach these representation models to ensure students have adequate exposure to the content. This resource is designed for independent work or partial guided practice. The student learning opportunities are all separated into two sections, so the teacher can use the entire page or use half-sheets for a quick daily activity filler.

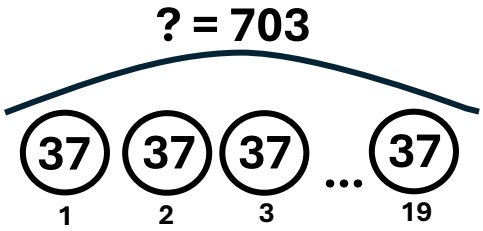
The program is designed to help students master the **physical meaning of multiplication** across various modeling representations. While adults recognize that repeated addition, area grids, and equal groups are structurally identical models, elementary students lack the perspective to see this connection automatically. However, when educators explicitly and repeatedly highlight these connections, students learn to unify their understanding, viewing all multiplication layouts as forms of equal groups.

A mastery level of physical modeling understanding assists elementary students in two important ways.

First, when engaged in a problem-solving situation, students become adept at viewing the problem as a multiplication problem since the model becomes apparent.

> For instance, *"John saved 8 dollars every day for 9 consecutive weeks. How much money had John save after nine weeks?"*
>
> 
>
>
> By leveraging this physical modeling, students can easily identify the traditional word problem that requires a multiplicative solution (8 x 9 = 72).

Second, these foundational models in this resource apply universally to all multiplication computations, whether students are working with fractions, decimals, or larger whole numbers.

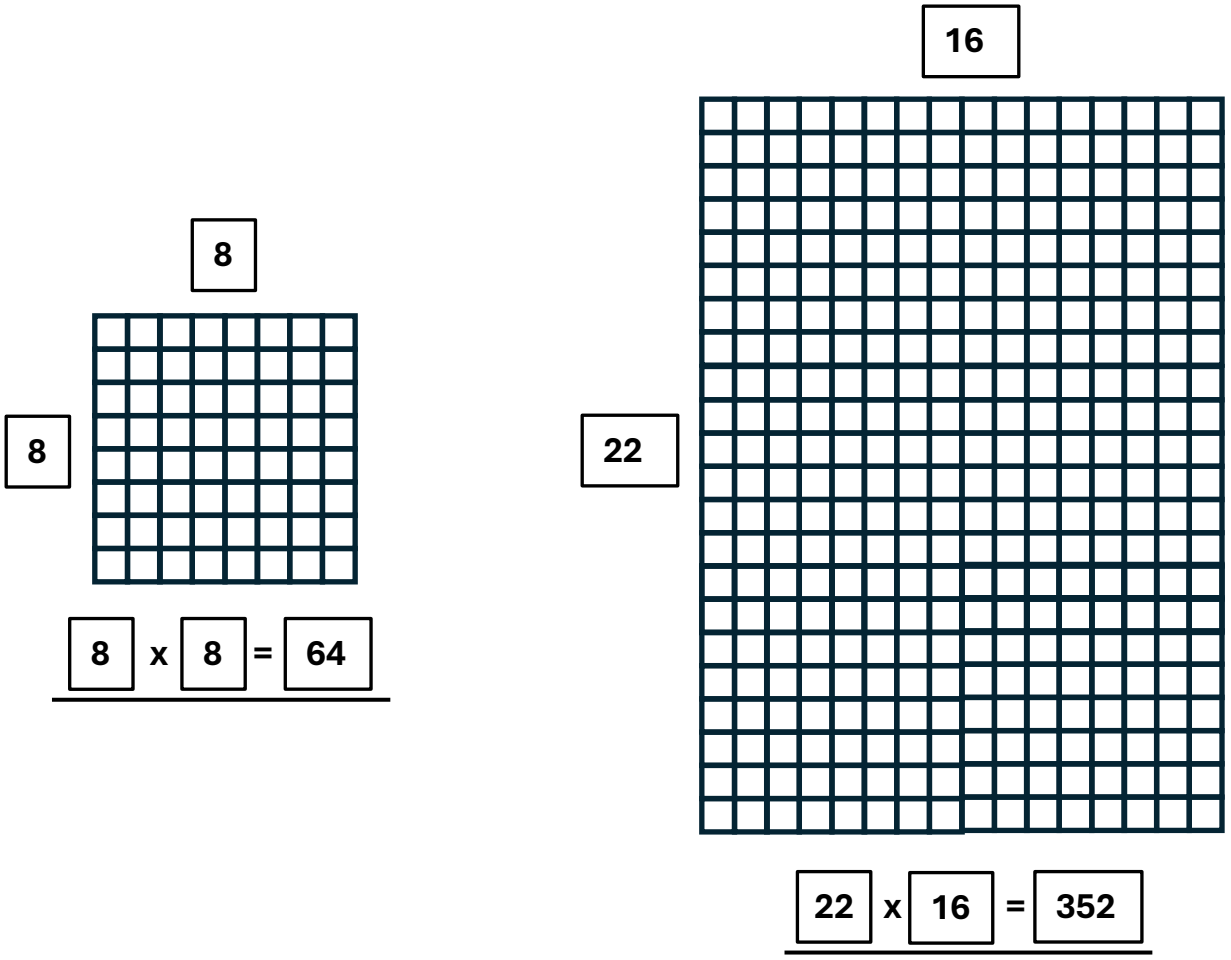
> For example, compute the product of 37 x 19 = (? = 703). The representation of that physical model can be shown in the same manner as the example shown from the word problem above.
>
> 
>
>
> It is essential to maintain a consistent multiplication representation model for larger digit whole number computations until the process is fully ingrained to students' long-term memory. Of course, this same model can effortlessly transition to solving division problems. Instead of calculating the product, students are provided with the dividend, allowing them to quickly recognize that the quotient represents a missing factor (such as the 37 or 19 shown above in the example). To streamline drawing, an ellipsis

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(three dots) is introduced. This punctuation allows students to accurately represent large models, like the 19 groups in this example, without needing to manually sketch every single circle.

Ultimately, this model-traditional word problem connection proves highly advantageous for the lower academic two-thirds of students in the class during problem solving tasks. While the top third of students intuitively grasp the underlying process and its conceptual framework, this exercise helps the remaining students actively bridge that gap. ***But the key will always be consistent practice!***

Finally, it is vitally important that students understand that the physical model of an operation, whether multiplication, addition, subtraction, or division, never changes when larger numbers are introduced. For example, the underlying concept of multiplication remains identical whether students are calculating **8 × 8** or **22 × 16**.



Because this connection is not intuitive for young learners, teachers must consistently reinforce this fact until it is firmly ingrained in their long-term memory. Again, with consistent practice as well as mastery of single digit math facts, this important concept is mastered quickly.

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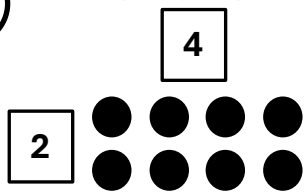
Multiplication Math Facts – 1's, 2's and 3's – Model Learning – V1

Directions: Fill in the blanks or boxes and write the multiplication math fact.

1.

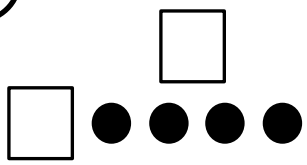
2 equal group of 4

4 equal groups of 2



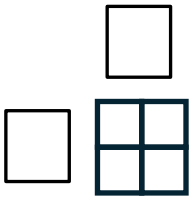
4 x 2 = 8

2.



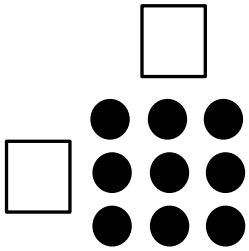
□ x □ = □

3.



□ x □ = □

4.



□ x □ = □

5.

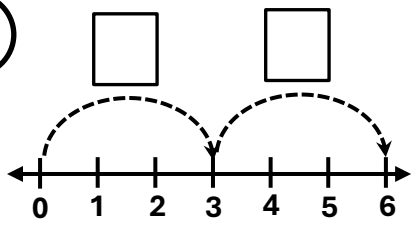
3 equal groups of 2



___ equal groups

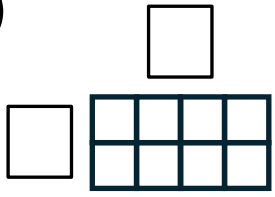
□ x □ = □

6.



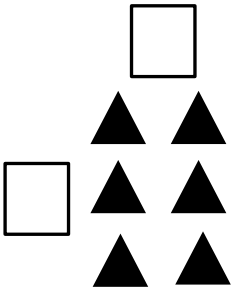
□ x □ = □

7.



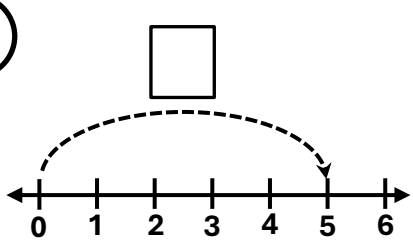
□ x □ = □

8.



□ x □ = □

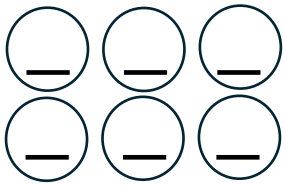
9.



□ x □ = □

10.

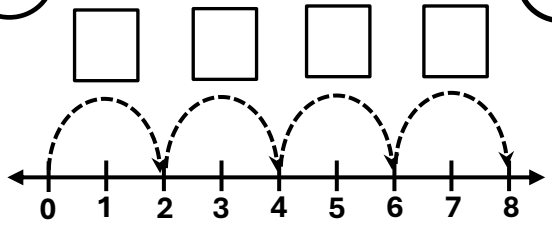
6 equal groups of 3



equal groups

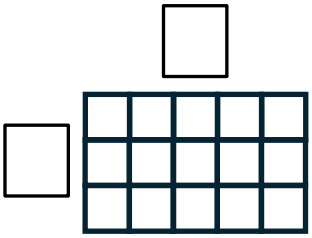
□ x □ = □

11.



□ x □ = □

12.



□ x □ = □

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Multiplication Math Facts – 1's, 2's and 3's – Model Learning – V1

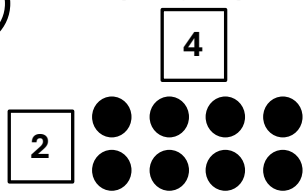
SOLUTIONS

Directions: Fill in the blanks ... e multiplication math fact.

1.

2 equal group of 4

4 equal groups of 2

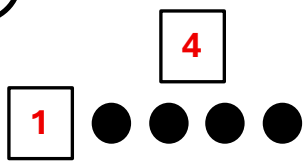


4 x 2 = 8

2.

1 equal group of 4

4 equal groups of 1

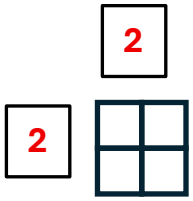


4 x 1 = 4

3.

2 equal groups of 2

or a 2 by 2 grid

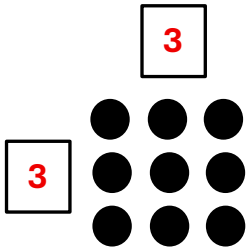


Perfect Square

2 x 2 = 4

4.

3 equal groups of 3



3 x 3 = 9

Perfect Square

5.

3 equal groups of 2

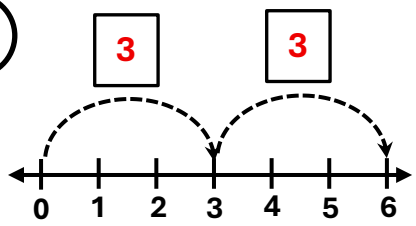


3 equal groups

2 x 3 = 6

6.

2 equal group of 3



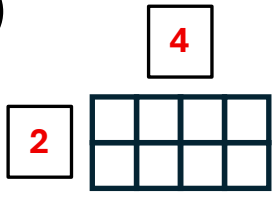
3 x 2 = 6

Rapid Addition Model

7.

2 equal groups of 4

2 by 4 or 4 by 2

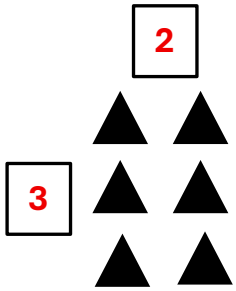


2 x 4 = 8

8.

3 equal groups of 2

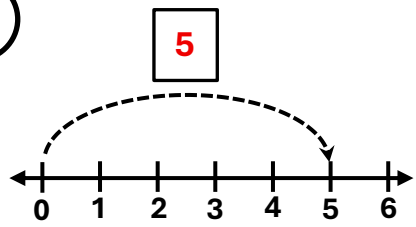
2 equal groups of 3



2 x 3 = 6

9.

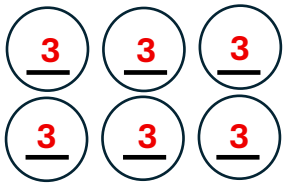
1 equal group of 5



5 x 1 = 5

10.

6 equal groups of 3

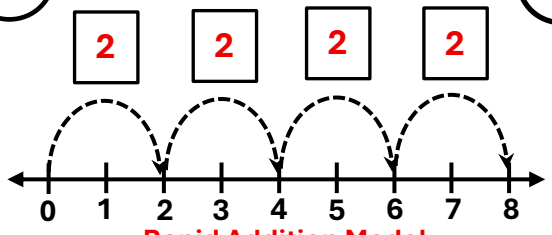


6 equal groups

6 x 3 = 18

11.

4 equal groups of 2



Rapid Addition Model

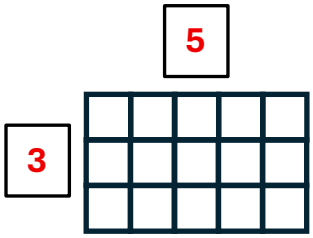
4 x 2 = 8

12.

5 equal groups of 3

3 equal groups of 5

3 by 5 or 5 by 3



3 x 5 = 15

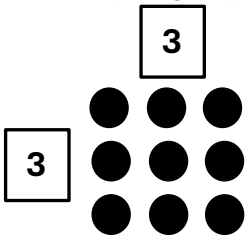
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Multiplication Math Facts – 1's, 2's and 3's – Model Learning – V2

Directions: Fill in the blanks or boxes and write the multiplication math fact.

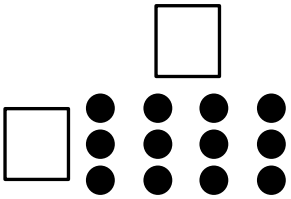
1.

3 equal groups of 3



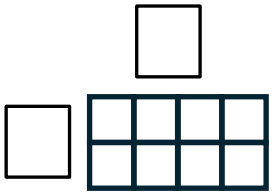
3 x 3 = 9

2.



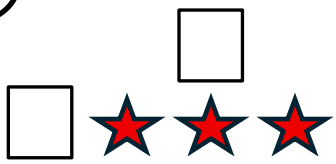
__ x __ = __

3.



__ x __ = __

6.



__ x __ = __

5.

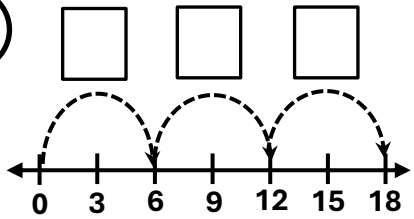
3 equal groups of 7



__ equal groups

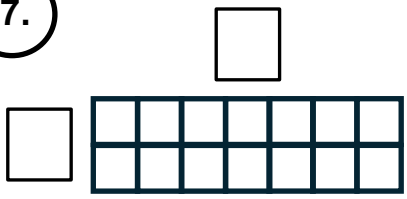
__ x __ = __

6.



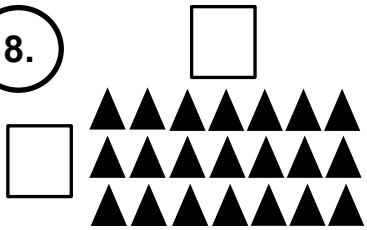
__ x __ = __

7.



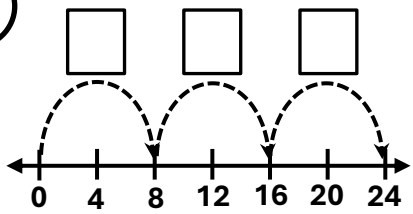
__ x __ = __

8.



__ x __ = __

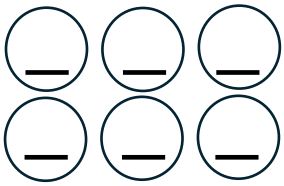
9.



__ x __ = __

10.

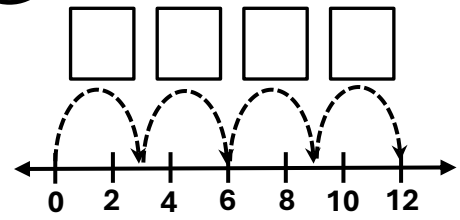
6 equal groups of 1



__ equal groups

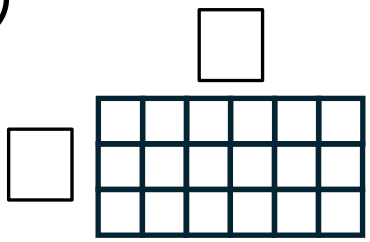
__ x __ = __

11.



__ x __ = __

12.



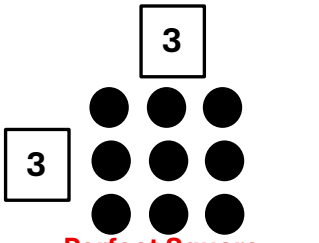
__ x __ = __

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Multiplication Math Facts – 1's, 2's and 3's – Model Learning – V2

Directions: Fill in the blanks c **SOLUTIONS** e multiplication math fact.

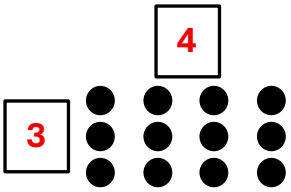
1. 3 equal groups of 3



Perfect Square

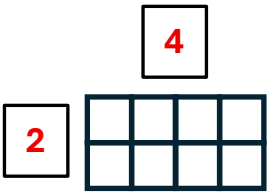
3 x 3 = 9

2. *3 equal groups of 4*



4 x 3 = 12

3. 2 equal groups of 4
or a 2 by 4 grid



4 x 2 = 8

6. 1 equal group of 3
3 equal groups of 1



3 x 1 = 3

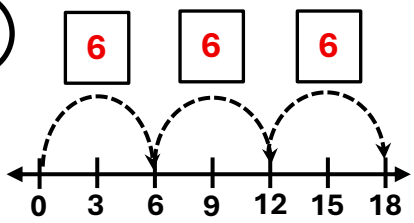
5. 3 equal groups of 7

7 7 7

3 equal groups

3 x 7 = 21

6. 3 equal groups of 6

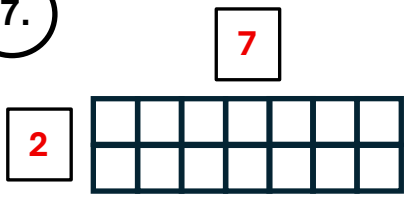


Rapid Addition Model

6 x 3 = 18

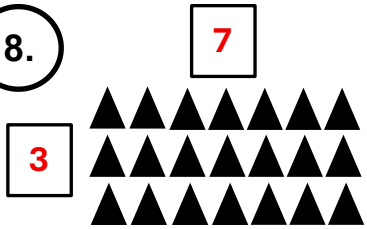
6 + 6 + 6 = 18

7. 7 equal groups of 2
2 equal groups of 7
2 by 7 or 7 by 2



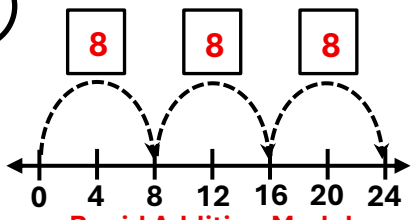
2 x 7 = 14

8. 3 equal groups of 7
7 equal groups of 3



3 x 7 = 21

9. 3 equal groups of 8



Rapid Addition Model

3 x 8 = 24

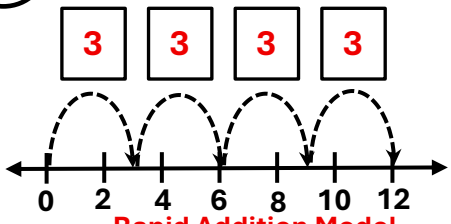
10. 6 equal groups of 1

1 1 1
1 1 1

6 equal groups

6 x 1 = 6

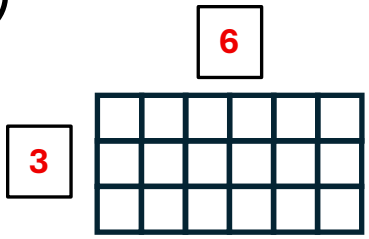
11. 4 equal groups of 3



Rapid Addition Model

4 x 3 = 12

12. 6 equal groups of 3
3 equal groups of 6
3 by 6 or 6 by 3



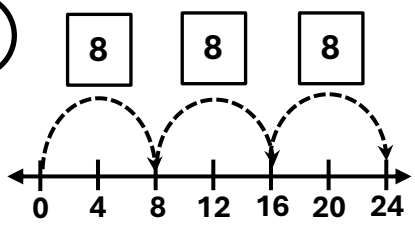
3 x 6 = 18

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Multiplication Math Facts – 1's, 2's and 3's – Model Learning – V3

Directions: Fill in the blanks or boxes and write the multiplication math fact.

1. 3 equal groups of 8

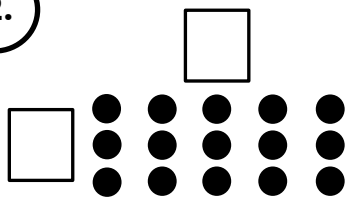


Repeated Addition Model

3 x 8 = 24

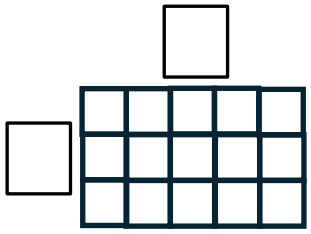
8 + 8 + 8 = 24

2.



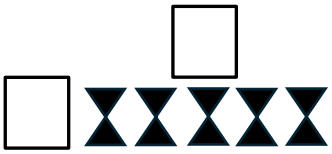
□ x □ = □

3.



□ x □ = □

4.



□ x □ = □

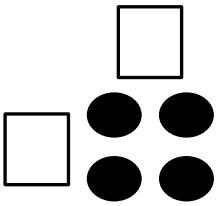
5. 3 equal groups of 9



___ equal groups

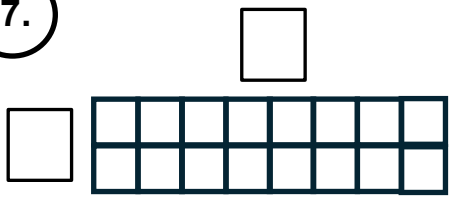
□ x □ = □

6.



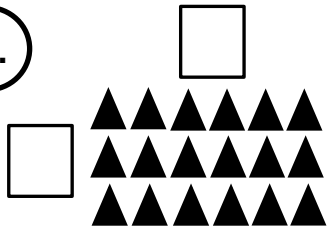
□ x □ = □

7.



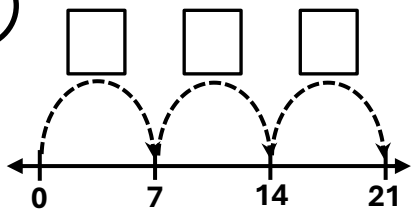
□ x □ = □

8.



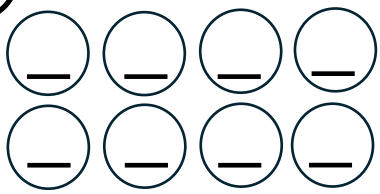
□ x □ = □

9.



□ x □ = □

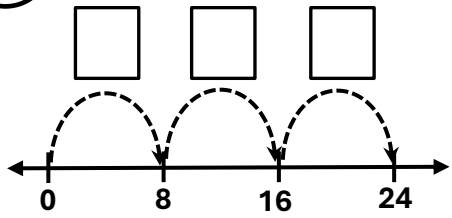
10. 8 equal groups of 1



___ equal groups

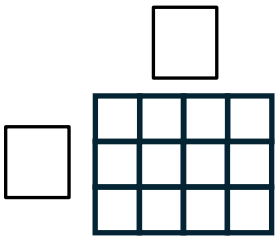
□ x □ = □

11.



□ x □ = □

12.



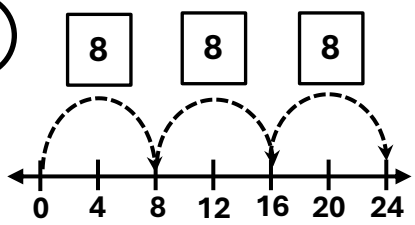
□ x □ = □

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Multiplication Math Facts – 1's, 2's and 3's – Model Learning – V3

Directions: Fill in the bla **SOLUTIONS** ite the multiplication math fact.

1. 3 equal groups of 8

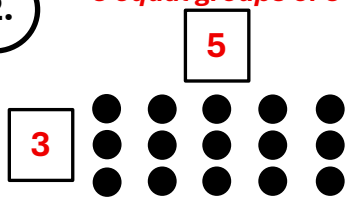


Repeated Addition Model

3 x 8 = 24

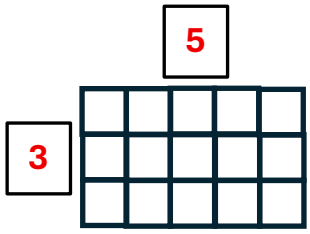
8 + 8 + 8 = 24

2. *5 equal groups of 3*
3 equal groups of 5



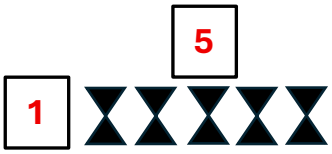
5 x 3 = 15

3. 3 equal groups of 5
or a 3 by 5 grid



3 x 5 = 15

4. 1 equal group of 5
5 equal groups of 1



5 x 1 = 5

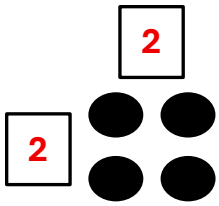
5. 3 equal groups of 9

9 9 9

3 equal groups

3 x 9 = 27

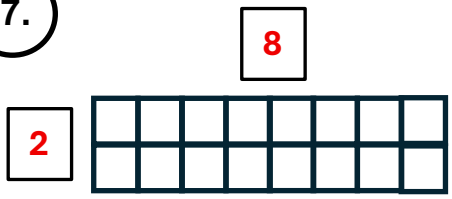
6. 2 equal groups of 2



Perfect Square

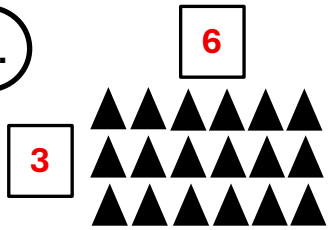
2 x 2 = 4

7. 8 equal groups of 2
2 equal groups of 8
2 by 8 or 8 by 2



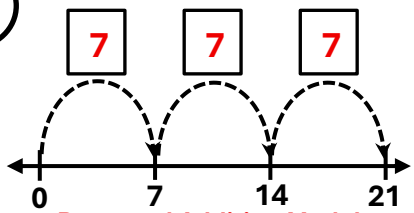
2 x 8 = 16

8. 3 equal groups of 6
6 equal groups of 3



3 x 6 = 18

9. 3 equal groups of 7



Repeated Addition Model

3 x 7 = 21

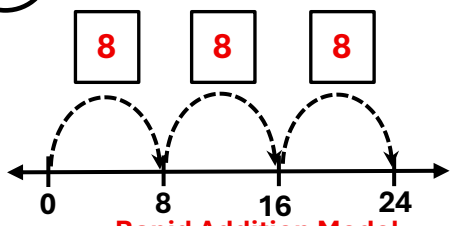
10. 8 equal groups of 1

1 1 1 1
1 1 1 1

8 equal groups

8 x 1 = 8

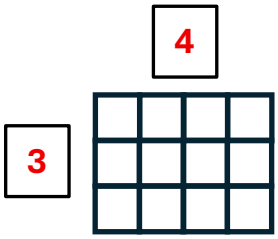
11. 3 equal groups of 8



Rapid Addition Model

8 x 3 = 24

12. 3 equal groups of 4
3 by 4 or 4 by 3



3 x 4 = 12

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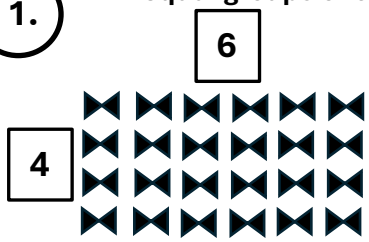
Multiplication Math Facts – 4's, 5's and 6's – Model Learning – V1

Directions: Fill in the blanks or boxes and write the multiplication math fact.

1.

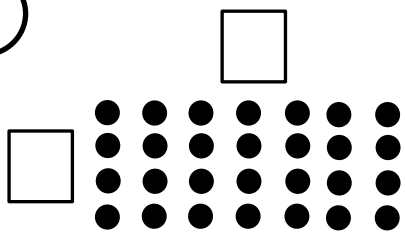
6 equal groups of 4

4 equal groups of 6



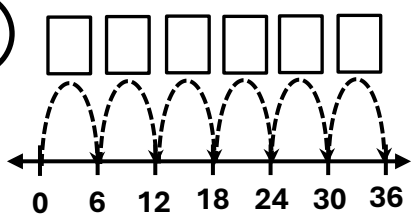
4 x 6 = 24

2.



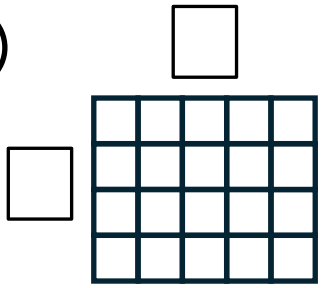
__ x __ = __

3.



__ x __ = __

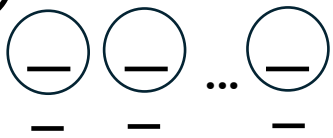
4.



__ x __ = __

5.

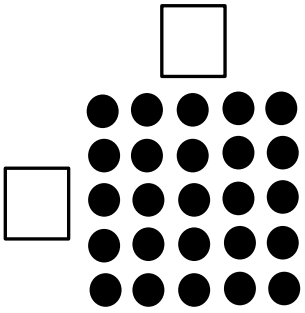
4 equal groups of 5



__ equal groups

__ x __ = __

6.



__ x __ = __

7.

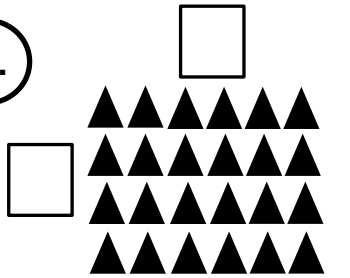
5 equal groups of 7

7	7	7	7	7

__ __ __ __ __

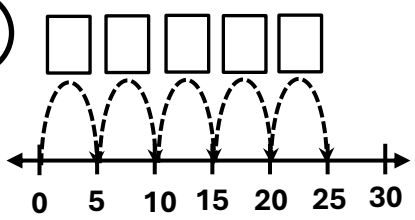
__ x __ = __

8.



__ x __ = __

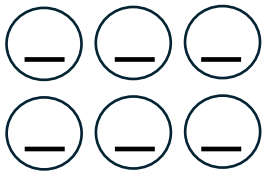
9.



__ x __ = __

10.

6 equal groups of 3

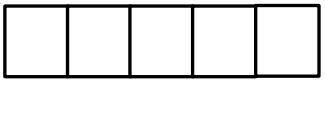


__ equal groups

__ x __ = __

11.

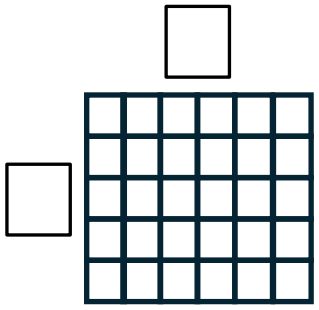
5 equal groups of 8



__ __ __ __ __

__ x __ = __

12.



__ x __ = __

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Multiplication Math Facts – 4's, 5's and 6's – Model Learning – V1

SOLUTIONS

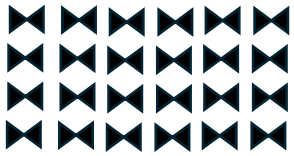
Directions: Fill in the [redacted] write the multiplication math fact.

1.

6 equal groups of 4
4 equal groups of 6

6

4



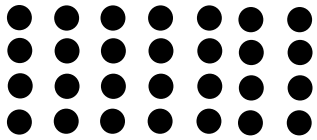
4 x 6 = 24

2.

7 equal groups of 4
4 equal groups of 7

7

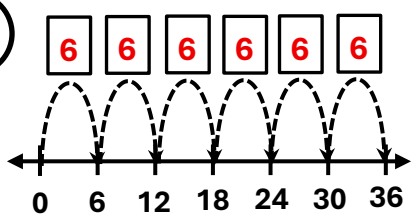
4



7 x 4 = 28

3.

6 equal groups of 6



Repeated Addition Model

6 x 6 = 36

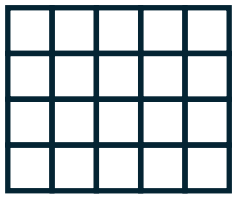
6 + 6 + 6 + 6 + 6 + 6 = 36

4.

4 equal groups of 5
or a 5 by 4 grid

5

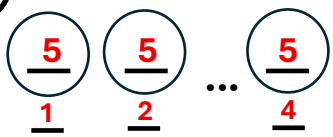
4



4 x 5 = 20

5.

4 equal groups of 5



4 equal groups

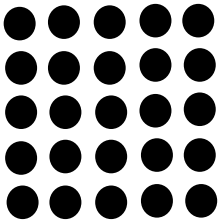
4 x 5 = 20

6.

5 equal groups of 5

5

5

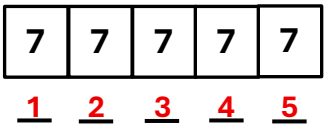


Perfect Square

5 x 5 = 25

7.

5 equal groups of 7



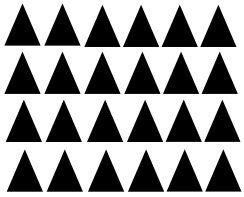
5 x 7 = 35

8.

4 equal groups of 6
6 equal groups of 4

6

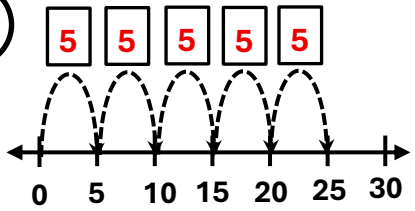
4



4 x 6 = 24

9.

5 equal groups of 5

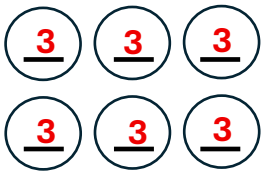


5 x 5 = 25

5 + 5 + 5 + 5 + 5 = 25

10.

6 equal groups of 3

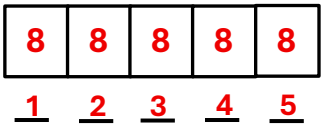


6 equal groups

3 x 6 = 18

11.

5 equal groups of 8



5 x 8 = 40

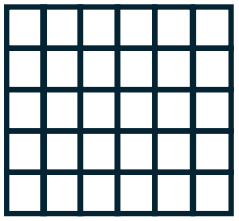
12.

6 equal groups of 6

6

6 by 5
5 by 6

5



5 x 6 = 30

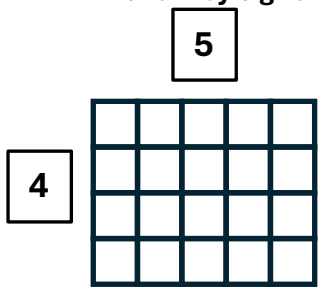
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Multiplication Math Facts – 4's, 5's and 6's – Model Learning – V2

Directions: Fill in the blanks or boxes and write the multiplication math fact.

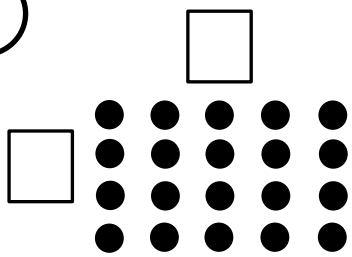
1.

4 equal groups of 5
or a 4 by 5 grid



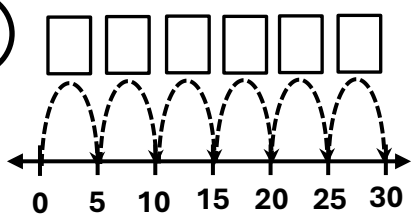
4 x 5 = 20

2.



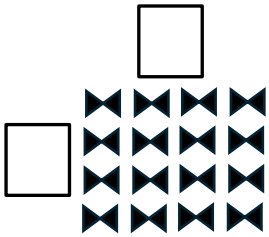
__ x __ = __

3.



__ x __ = __

4.



__ x __ = __

5.

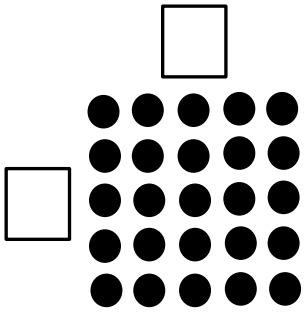
6 equal groups of 9



__ equal groups

__ x __ = __

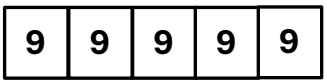
6.



__ x __ = __

7.

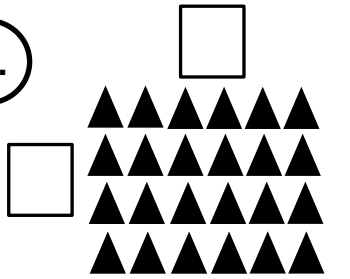
5 equal groups of 9



__ __ __ __ __

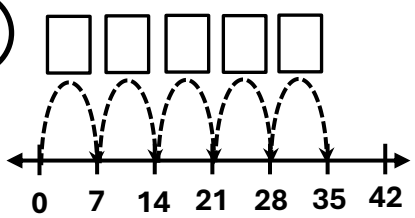
__ x __ = __

8.



__ x __ = __

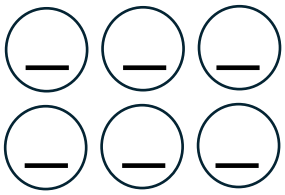
9.



__ x __ = __

10.

6 equal groups of 7



__ equal groups

__ x __ = __

11.

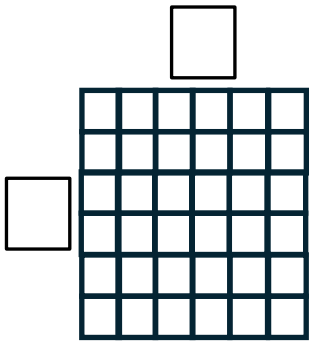
4 equal groups of 8



__ __ __ __

__ x __ = __

12.



__ x __ = __

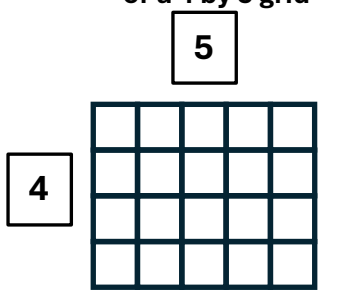
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Multiplication Math Facts – 4's, 5's and 6's – Model Learning – V2

SOLUTIONS

Directions: Fill in the [illegible] write the multiplication math fact.

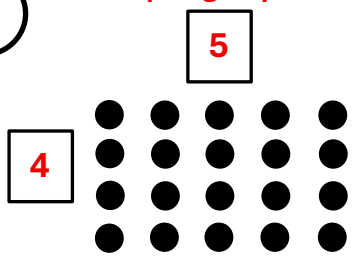
1. 4 equal groups of 5 or a 4 by 5 grid



4 x 5 = 20

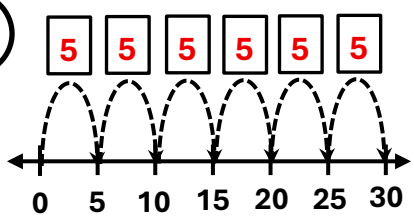
Same model!

2. *5 equal groups of 4*
4 equal groups of 5



5 x 4 = 20

3. 6 equal groups of 5

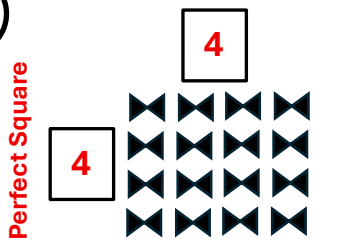


Repeated Addition Model

5 x 6 = 30

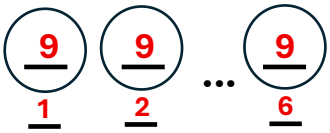
5 + 5 + 5 + 5 + 5 + 5 = 30

4. 4 equal groups of 4



4 x 4 = 16

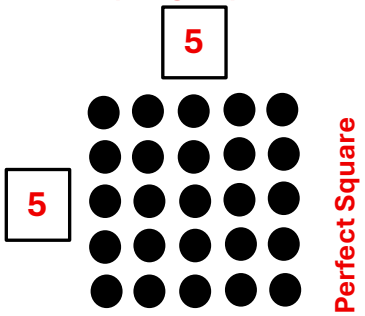
5. 6 equal groups of 9



6 equal groups

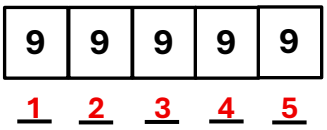
6 x 9 = 54

6. 5 equal groups of 5



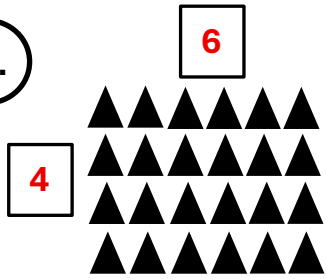
5 x 5 = 25

7. 5 equal groups of 9



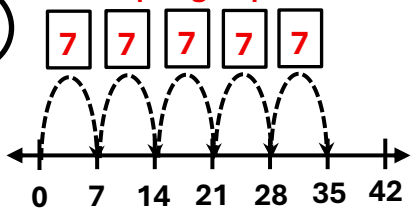
5 x 9 = 45

8. 4 equal groups of 6
6 equal groups of 4



4 x 6 = 24

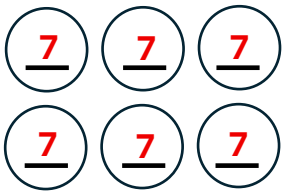
9. 5 equal groups of 7



5 x 7 = 35

7 + 7 + 7 + 7 + 7 = 35

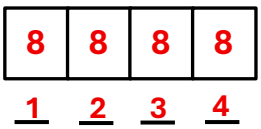
10. 6 equal groups of 7



6 equal groups

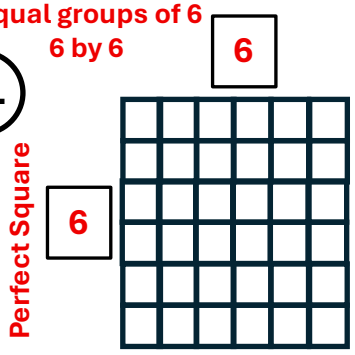
6 x 7 = 42

11. 4 equal groups of 8



4 x 8 = 32

12. 6 equal groups of 6
6 by 6



6 x 6 = 36

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Multiplication Math Facts – 4's, 5's and 6's – Model Learning – V3

Directions: Fill in the blanks or boxes and write the multiplication math fact.

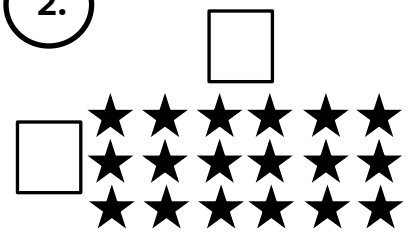
1.

4 equal groups of 8

8	8	8	8
1	2	3	4

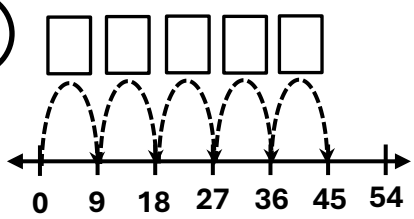
4 x 8 = 32

2.



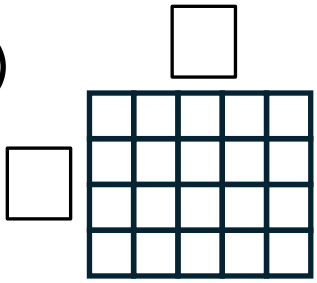
__ x __ = __

3.



__ x __ = __

4.



__ x __ = __

5.

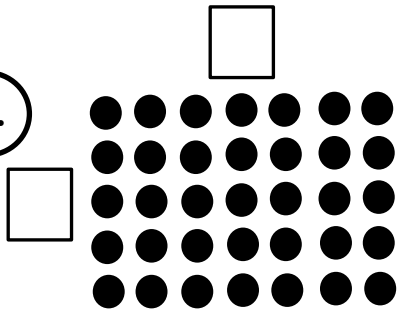
4 equal groups of 9



__ equal groups

__ x __ = __

6.



__ x __ = __

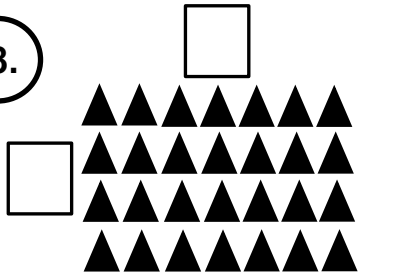
7

6 equal groups of 8

8	8	8	8	8	8
_	_	_	_	_	_

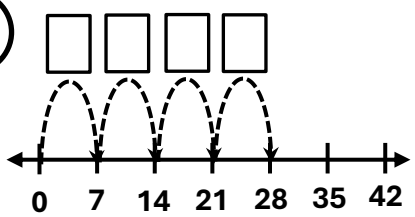
__ x __ = __

8.



__ x __ = __

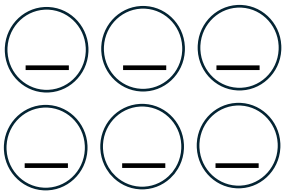
9.



__ x __ = __

10.

6 equal groups of 2

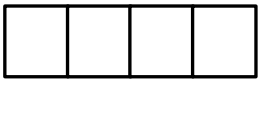


__ equal groups

__ x __ = __

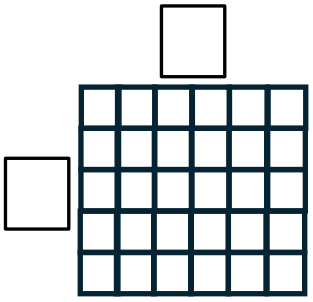
11.

4 equal groups of 9



__ x __ = __

12.



__ x __ = __

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Multiplication Math Facts – 4's, 5's and 6's – Model Learning – V3

SOLUTIONS

Directions: Fill in the ____ write the multiplication math fact.

1.

4 equal groups of 8

8	8	8	8
1	2	3	4

4 x 8 = 32

2.

6 equal groups of 3
3 equal groups of 6

6

3

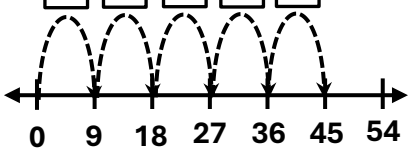


6 x 3 = 18

3.

5 equal groups of 9

9	9	9	9	9



Repeated Addition Model

5 x 9 = 45

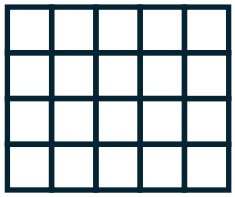
9 + 9 + 9 + 9 + 9 = 45

4.

4 equal groups of 5
or a 4 by 5 grid

5

4



4 x 5 = 20

5.

4 equal groups of 9

9	9	...	9
1	2		4

4 equal groups

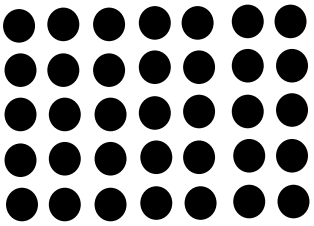
4 x 9 = 36

6.

5 equal groups of 5

7

5



5 x 7 = 35

7

6 equal groups of 8

8	8	8	8	8	8
1	2	3	4	5	6

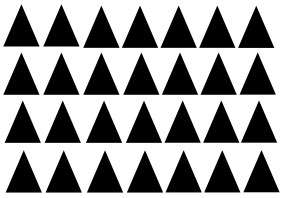
6 x 8 = 48

8.

4 equal groups of 7
7 equal groups of 4

7

4

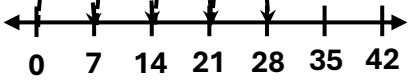


4 x 7 = 28

9.

4 equal groups of 7

7	7	7	7



4 x 7 = 28

7 + 7 + 7 + 7 = 28

10.

6 equal groups of 2

2	2	2
2	2	2

6 equal groups

6 x 2 = 12

11.

4 equal groups of 9

9	9	9	9
1	2	3	4

4 x 9 = 36

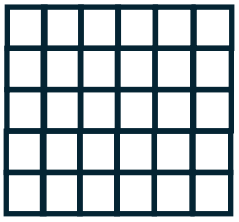
12.

6 equal groups of 5

6

5 by 6
6 by 5

5



6 x 5 = 30

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Multiplication Math Facts – 7's, 8's and 9's – Model Learning – V1

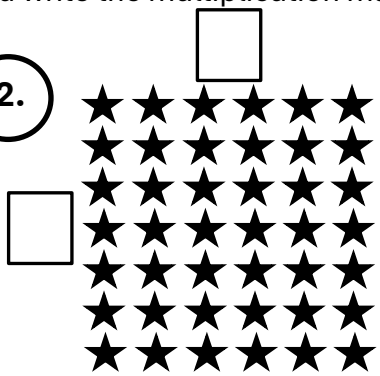
Directions: Fill in the blanks or boxes and write the multiplication math fact.

1. 7 equal groups of 8

8	8	8	8	8	8	8
1	2	3	4	5	6	7

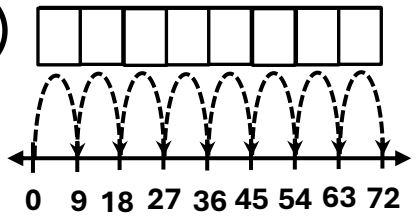
7 x 8 = 56

2.



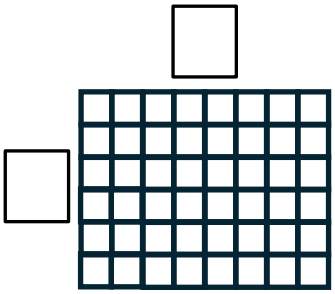
□ x □ = □

3.



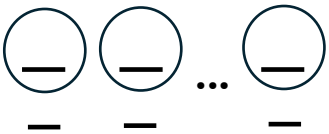
□ x □ = □

4



□ x □ = □

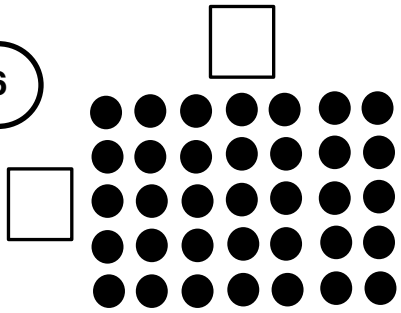
5. 9 equal groups of 9



___ equal groups

□ x □ = □

6



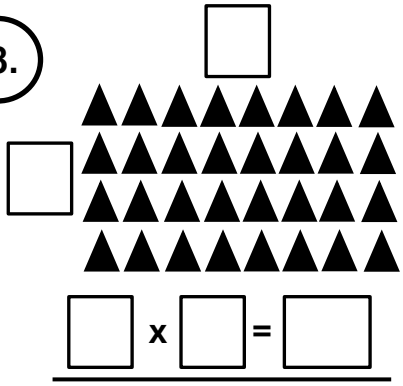
□ x □ = □

7 6 equal groups of 7

7	7	7	7	7	7
—	—	—	—	—	—

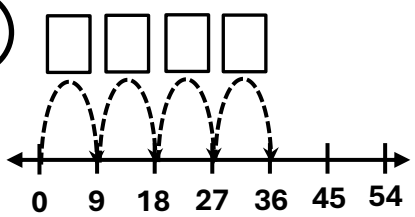
□ x □ = □

8.



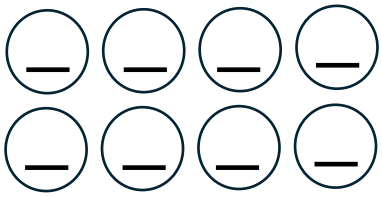
□ x □ = □

9.



□ x □ = □

10. 8 equal groups of 7



___ equal groups

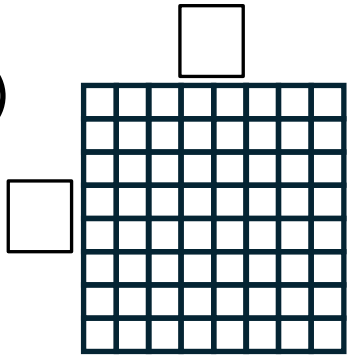
□ x □ = □

11. 5 equal groups of 9

—	—	—	—	—

□ x □ = □

12.



□ x □ = □

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Multiplication Math Facts – 7's, 8's and 9's – Model Learning – V1

Directions: Fill **SOLUTIONS** s and write the multiplication math fact.

1.

7 equal groups of 8

8	8	8	8	8	8	8
1	2	3	4	5	6	7

7 x 8 = 56

2.

6

7



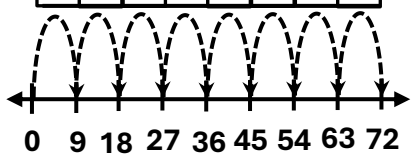
6 equal groups of 7

6 x 7 = 42

3.

8 equal groups of 9

9	9	9	9	9	9	9	9



Repeated Addition Model

8 x 9 = 72

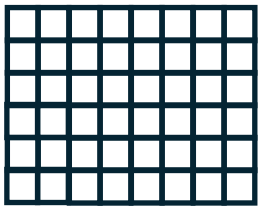
9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 = 72

4.

8equal groups of 6
or a 6 by 8 grid

8

6



8 x 6 = 48

5.

9 equal groups of 9

9	9	...	9
1	2		9

9 equal groups

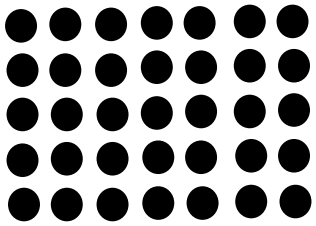
9 x 9 = 81

6.

5 equal groups of 5

7

5



5 x 7 = 35

4 equal groups of 8
8 equal groups of 4

7

6 equal groups of 7

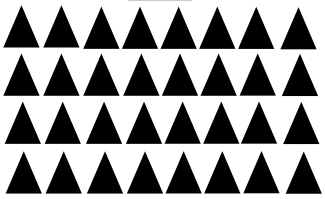
7	7	7	7	7	7
1	2	3	4	5	6

6 x 7 = 42

8.

8

4

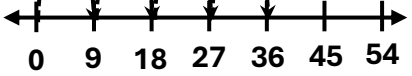


4 x 8 = 32

9.

4 equal groups of 9

9	9	9	9



4 x 9 = 36

9 + 9 + 9 + 9 = 36

10.

8 equal groups of 7

7	7	7	7
7	7	7	7

8 equal groups

8 x 7 = 56

11.

5 equal groups of 9

9	9	9	9	9
1	2	3	4	5

5 x 9 = 45

12.

8

8

8 by 8

Perfect Square

8 x 8 = 64

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Multiplication Math Facts – 7's, 8's and 9's – Model Learning – V2

Directions: Fill in the blanks or boxes and write the multiplication math fact.

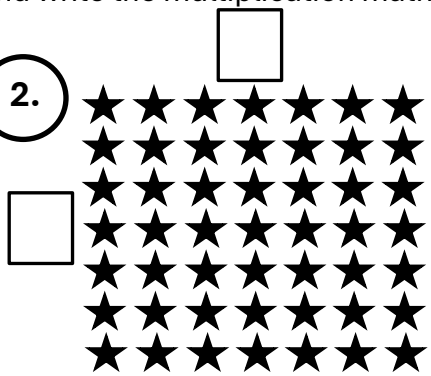
1.

6 equal groups of 8

8	8	8	8	8	8
1	2	3	4	5	6

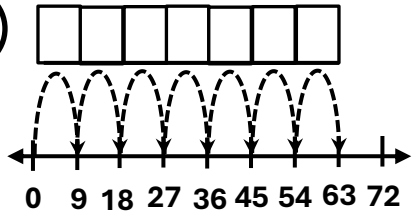
6 x 8 = 48

2.



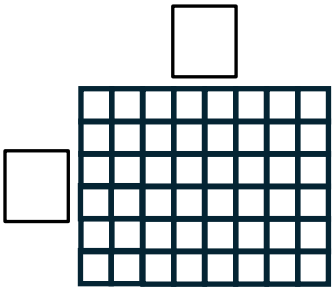
□ x □ = □

3.



□ x □ = □

4.



□ x □ = □

5.

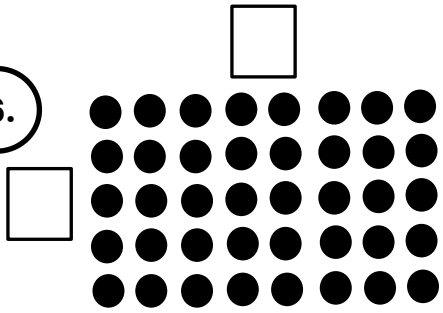
6 equal groups of 9



___ equal groups

□ x □ = □

6.



□ x □ = □

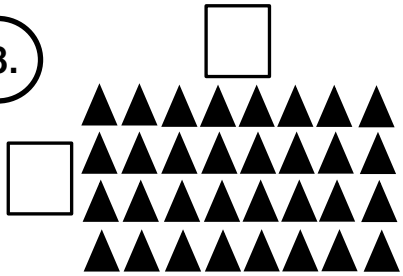
7

7 equal groups of 7

7	7	7	7	7	7	7
—	—	—	—	—	—	—

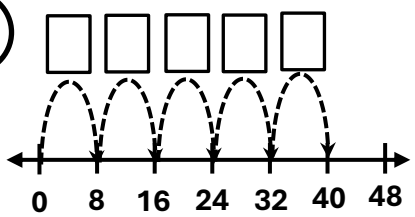
□ x □ = □

8.



□ x □ = □

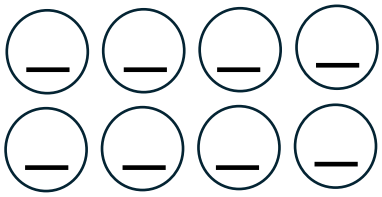
9.



□ x □ = □

10.

8 equal groups of 4

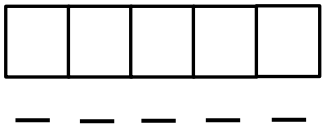


___ equal groups

□ x □ = □

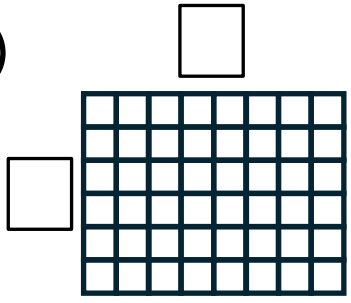
11.

5 equal groups of 9



□ x □ = □

12.



□ x □ = □

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Multiplication Math Facts – 7's, 8's and 9's – Model Learning – V2

Directions: Fill **SOLUTIONS** s and write the multiplication math fact.

1.

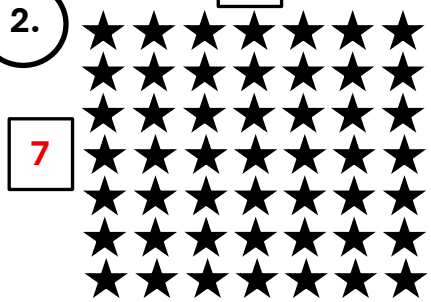
6 equal groups of 8

8	8	8	8	8	8
1	2	3	4	5	6

6 x 8 = 48

2.

7



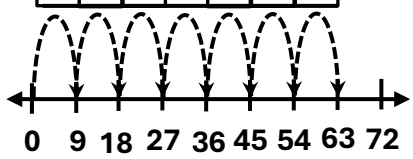
7

7 x 7 = 49

3.

7 equal groups of 9

9	9	9	9	9	9	9



Repeated Addition Model

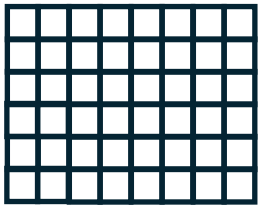
7 x 9 = 63

9 + 9 + 9 + 9 + 9 + 9 + 9 = 63

4.

8 equal groups of 6
or a 6 by 8 grid

8



6

8 x 6 = 48

5.

6 equal groups of 9

9	9	...	9
1	2		6

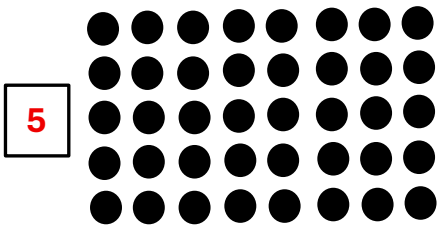
6 equal groups

9 x 6 = 54

6.

5 equal groups of 8

8



5

5 x 8 = 40

4 equal groups of 8
8 equal groups of 4

7

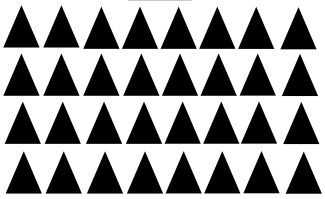
7 equal groups of 7

7	7	7	7	7	7	7
1	2	3	4	5	6	7

7 x 7 = 49

8.

8



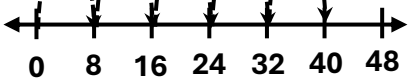
4

4 x 8 = 32

9.

5 equal groups of 8

8	8	8	8	8



5 x 8 = 40

8 + 8 + 8 + 8 + 8 = 40

10.

8 equal groups of 4

4	4	4	4
4	4	4	4

8 equal groups

8 x 4 = 32

11.

5 equal groups of 9

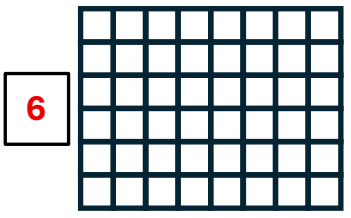
9	9	9	9	9
1	2	3	4	5

5 x 9 = 45

12.

8

8 by 6
6 by 8



6

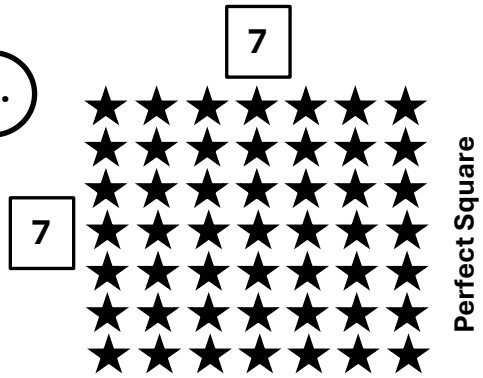
8 x 6 = 48

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Multiplication Math Facts – 7's, 8's and 9's – Model Learning – V3

Directions: Fill in the blanks or boxes and write the multiplication math fact.

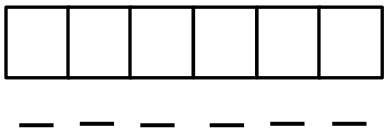
1.



7 x 7 = 49

2.

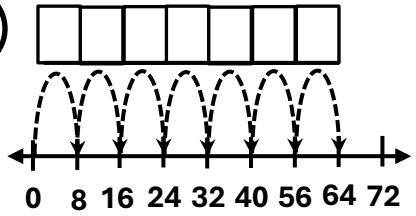
6 equal groups of 8



_ _ _ _ _ _

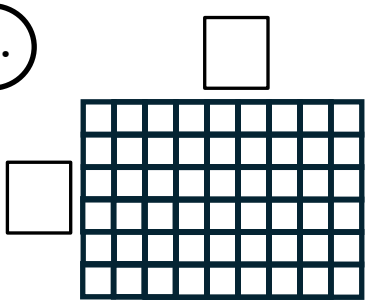
□ x □ = □

3.



□ x □ = □

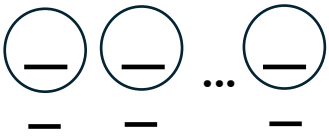
4.



□ x □ = □

5.

7 equal groups of 9



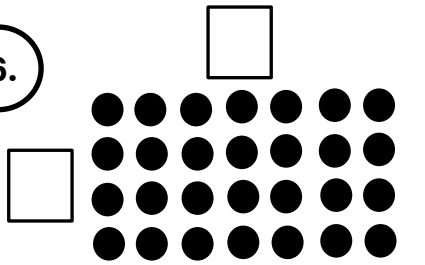
_ _ ... _

_ _ _

__ equal groups

□ x □ = □

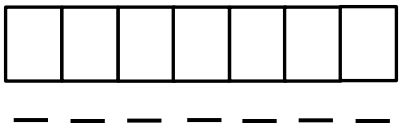
6.



□ x □ = □

7

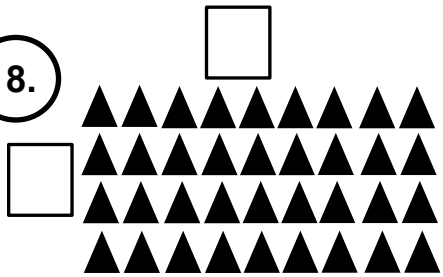
7 equal groups of 9



_ _ _ _ _ _ _

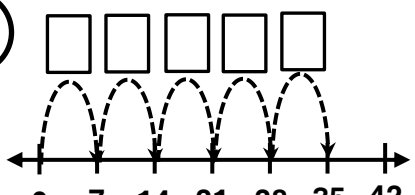
□ x □ = □

8.



□ x □ = □

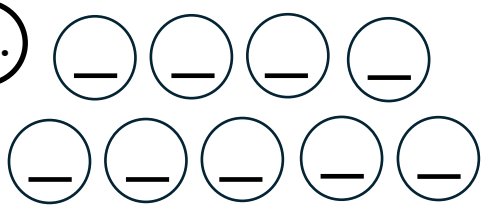
9.



□ x □ = □

9 equal groups of 9

10.

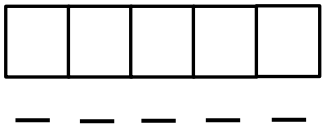


__ equal groups

□ x □ = □

11.

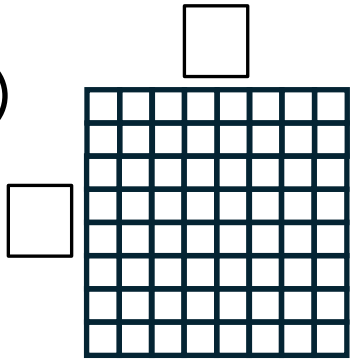
5 equal groups of 8



_ _ _ _ _

□ x □ = □

12.



□ x □ = □

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Multiplication Math Facts – 7's, 8's and 9's – Model Learning – V3

Directions: Fill **SOLUTIONS** s and write the multiplication math fact.

1.

7



7 x 7 = 49

2.

6 equal groups of 8

8	8	8	8	8	8
1	2	3	4	5	6

6 x 8 = 48

3.

8 equal groups of 8

8	8	8	8	8	8	8

0 8 16 24 32 40 56 64 72

Repeated Addition Model

8 x 8 = 64

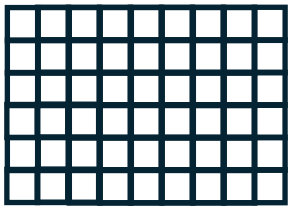
8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 64

4.

9 equal groups of 6 or a 6 by 9 grid

9

6



9 x 6 = 54

5.

7 equal groups of 9

9	9	...	9
1	2		7

7 equal groups

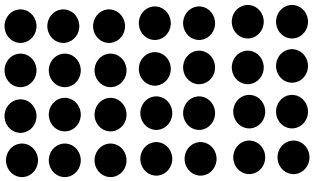
9 x 7 = 63

6.

7 equal groups of 4

7

4



4 x 7 = 28

7

7 equal groups of 9

9	9	9	9	9	9	9
1	2	3	4	5	6	7

7 x 9 = 63

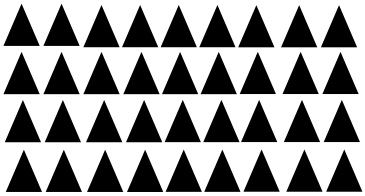
8.

4 equal groups of 9

9 equal groups of 4

9

4



4 x 9 = 36

9.

5 equal groups of 7

7	7	7	7	7

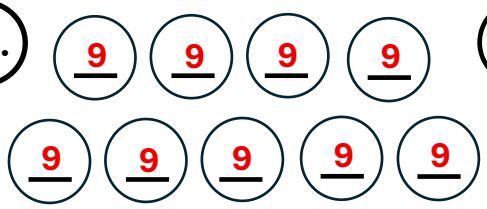
0 7 14 21 28 35 42

5 x 7 = 35

7 + 7 + 7 + 7 + 7 = 35

10.

9 equal groups of 9



9 equal groups

9 x 9 = 81

11.

5 equal groups of 8

8	8	8	8	8
1	2	3	4	5

5 x 8 = 40

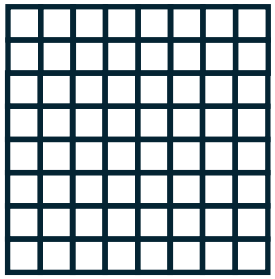
12.

8 by 8

8

8

Perfect Square



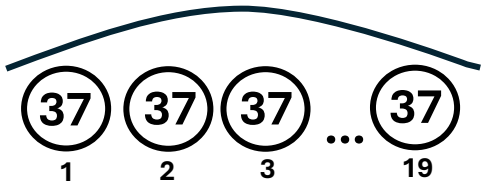
8 x 8 = 64

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Modeling Multiplication – Large Numbers – Model Learning – V1

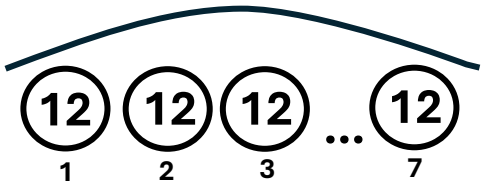
Directions: Write the multiplication equation using the model above each equation.

1.



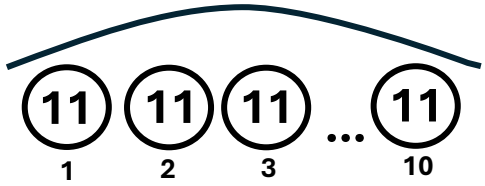
37 x 19 = 703

2.



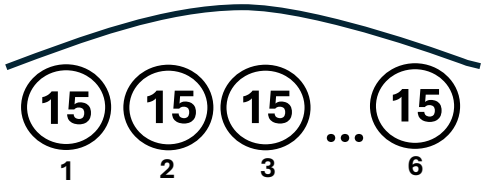
____ x ____ = ____

3.



____ x ____ = ____

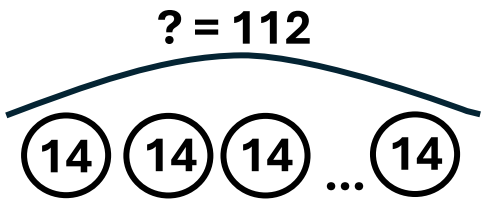
4.



____ x ____ = ____

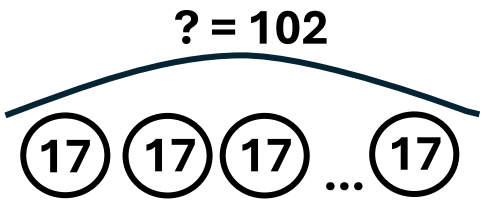
Directions: Write the multiplication equation using the model above each equation.

1.



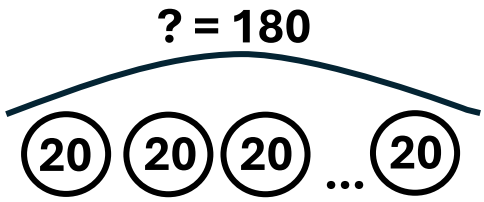
14 x 8 = 112

2.



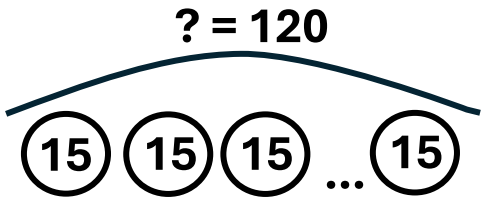
____ x ____ = ____

3.



____ x ____ = ____

4.



____ x ____ = ____

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Modeling Multiplication – Large Numbers – Model Learning – V1

Directions: Write the multiplication equation using the model above each equation. **SOLUTIONS**

1.

? = 703

37 (1) 37 (2) 37 (3) ... 37 (19)

37 x 19 = 703

2.

? = 84

12 (1) 12 (2) 12 (3) ... 12 (7)

12 x 7 = 84

3.

? = 110

11 (1) 11 (2) 11 (3) ... 11 (10)

11 x 10 = 110

4.

? = 90

15 (1) 15 (2) 15 (3) ... 15 (6)

15 x 6 = 90

Directions: Write the multiplication equation using the model above each equation.

1.

? = 112

14 (1) 14 (2) 14 (3) ... 14 (8)

14 x 8 = 112

2.

? = 102

17 (1) 17 (2) 17 (3) ... 17 (6)

17 x 6 = 102

3.

? = 180

20 (1) 20 (2) 20 (3) ... 20 (9)

20 x 9 = 180

4.

? = 120

15 (1) 15 (2) 15 (3) ... 15 (8)

15 x 8 = 120

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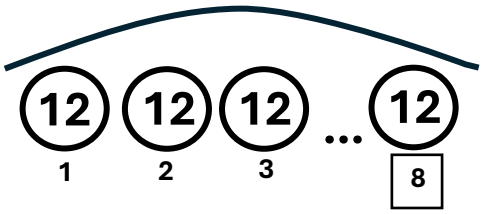
Modeling Multiplication – Large Numbers – Model Learning – V2

Directions: Compute the product. Then, write the numbers that correctly complete the model.

1.

$$\begin{array}{r} 12 \\ \times\ 8 \\ \hline 96 \end{array}$$

? = 96

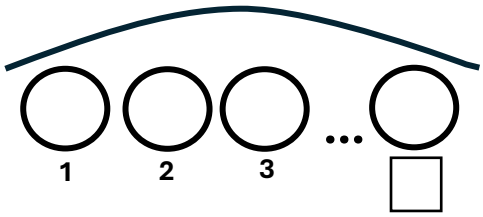


12 x 8 = 96

2.

$$\begin{array}{r} 10 \\ \times\ 9 \\ \hline \end{array}$$

? = ____

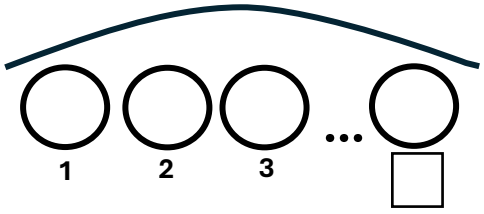


____ x ____ = ____

3.

$$\begin{array}{r} 15 \\ \times\ 5 \\ \hline \end{array}$$

? = ____

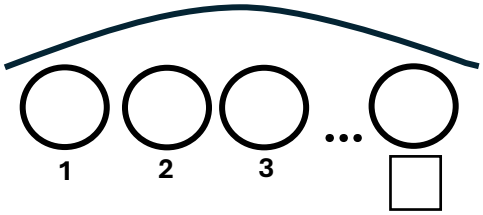


____ x ____ = ____

4.

$$\begin{array}{r} 20 \\ \times\ 7 \\ \hline \end{array}$$

? = ____



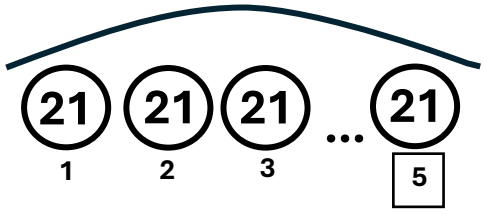
____ x ____ = ____

Directions: Compute the product. Then, write the numbers that correctly complete the model.

1.

$$\begin{array}{r} 21 \\ \times\ 5 \\ \hline 105 \end{array}$$

? = 105

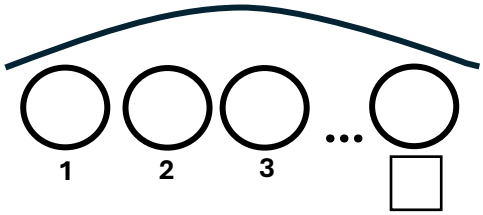


21 x 5 = 105

2.

$$\begin{array}{r} 12 \\ \times\ 9 \\ \hline \end{array}$$

? = ____

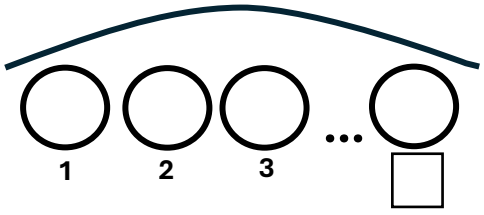


____ x ____ = ____

3.

$$\begin{array}{r} 16 \\ \times\ 5 \\ \hline \end{array}$$

? = ____

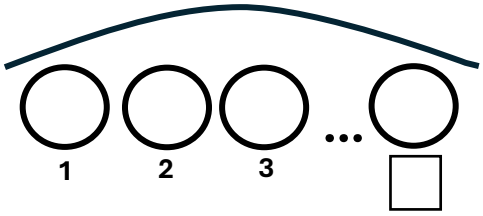


____ x ____ = ____

4.

$$\begin{array}{r} 30 \\ \times\ 8 \\ \hline \end{array}$$

? = ____



____ x ____ = ____

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Modeling Multiplication – Large Numbers – Model Learning – V2

Directions: Compute the product. Then, write the numbers that correctly complete the model.

SOLUTIONS

1.

$$\begin{array}{r} 12 \\ \times\ 8 \\ \hline 96 \end{array}$$

? = 96

12 (1) + 12 (2) + 12 (3) + ... + 12 (8)

12 x 8 = 96

2.

$$\begin{array}{r} 10 \\ \times\ 9 \\ \hline 90 \end{array}$$

? = 90

10 (1) + 10 (2) + 10 (3) + ... + 10 (9)

10 x 9 = 90

3.

$$\begin{array}{r} 15 \\ \times\ 5 \\ \hline 75 \end{array}$$

? = 75

15 (1) + 15 (2) + 15 (3) + ... + 15 (5)

15 x 5 = 75

4.

$$\begin{array}{r} 20 \\ \times\ 7 \\ \hline 140 \end{array}$$

? = 140

20 (1) + 20 (2) + 20 (3) + ... + 20 (7)

20 x 7 = 140

Directions: Compute the product. Then, write the numbers that correctly complete the model.

1.

$$\begin{array}{r} 21 \\ \times\ 5 \\ \hline 105 \end{array}$$

? = 105

21 (1) + 21 (2) + 21 (3) + ... + 21 (5)

21 x 5 = 105

2.

$$\begin{array}{r} 12 \\ \times\ 9 \\ \hline 108 \end{array}$$

? = 108

12 (1) + 12 (2) + 12 (3) + ... + 12 (9)

12 x 9 = 108

3.

$$\begin{array}{r} 16 \\ \times\ 5 \\ \hline 80 \end{array}$$

? = 80

16 (1) + 16 (2) + 16 (3) + ... + 16 (5)

16 x 5 = 80

4.

$$\begin{array}{r} 30 \\ \times\ 8 \\ \hline 240 \end{array}$$

? = 240

30 (1) + 30 (2) + 30 (3) + ... + 30 (8)

30 x 8 = 240

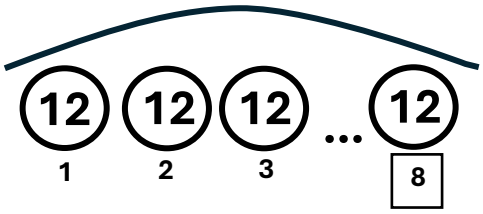
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Modeling Multiplication – Large Numbers – Model Learning – V3

Directions: Compute the product. Then, write the numbers that correctly complete the model.

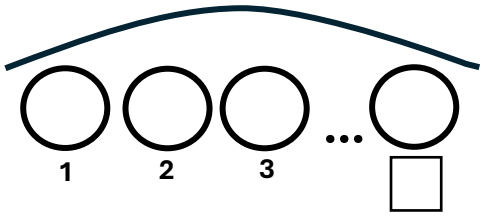
1. $12 \times 8 = 96$

? = 96



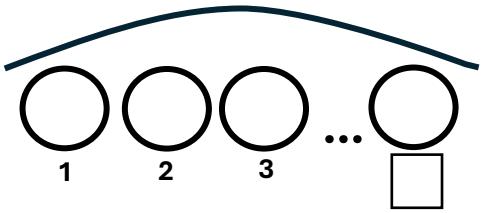
2. $15 \times 6 =$ ____

? = ____



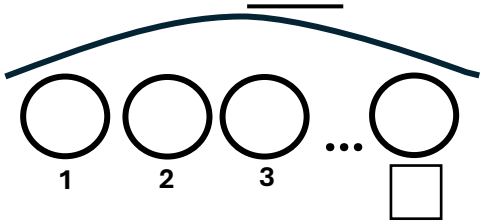
3. $12 \times 5 =$ ____

? = ____



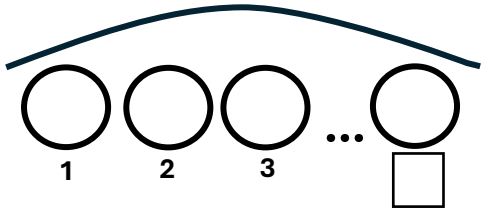
4. $40 \times 7 =$ ____

? = ____



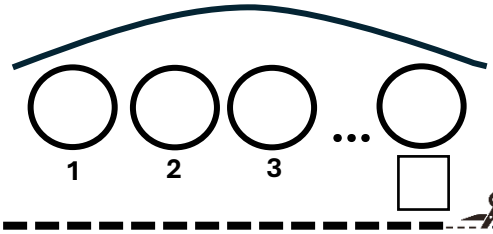
5. $15 \times 5 =$ ____

? = ____



6. $10 \times 9 =$ ____

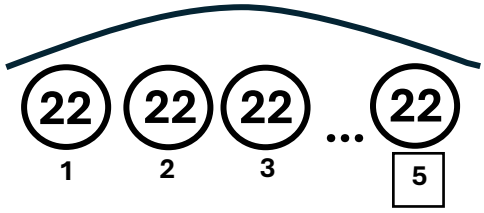
? = ____



Directions: Compute the product. Then, write the numbers that correctly complete the model.

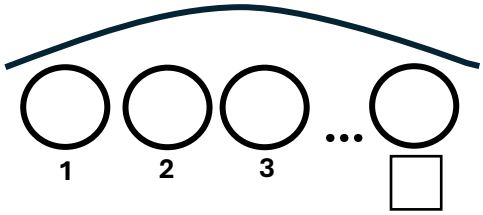
1. $22 \times 5 = 110$

? = 110



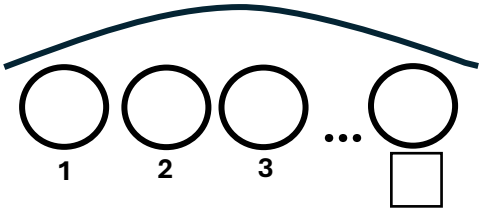
2. $12 \times 9 =$ ____

? = ____



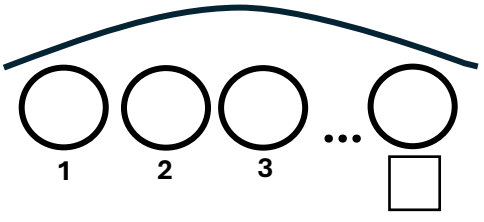
3. $16 \times 6 =$ ____

? = ____



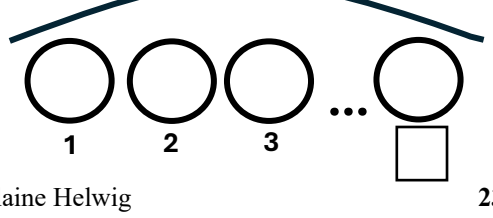
4. $50 \times 7 =$ ____

? = ____



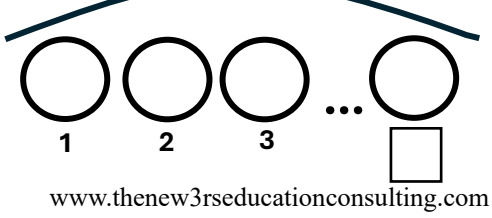
5. $17 \times 6 =$ ____

? = ____



6. $100 \times 8 =$ ____

? = ____



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Modeling Multiplicati… …mbers – Model Learning – V3

SOLUTIONS

Directions: Compute the product. Th… …rs that correctly complete the model.

1.

$$\begin{array}{r} 12 \\ \times\ 8 \\ \hline 96 \end{array}$$

? = 96

12 (1) + 12 (2) + 12 (3) + … + 12 [8]

2.

$$\begin{array}{r} 15 \\ \times\ 6 \\ \hline 90 \end{array}$$

? = 90

15 (1) + 15 (2) + 15 (3) + … + 15 [6]

3.

$$\begin{array}{r} 12 \\ \times\ 5 \\ \hline 60 \end{array}$$

? = 60

12 (1) + 12 (2) + 12 (3) + … + 12 [5]

4.

$$\begin{array}{r} 40 \\ \times\ 7 \\ \hline 280 \end{array}$$

? = 280

40 (1) + 40 (2) + 40 (3) + … + 40 [7]

5.

$$\begin{array}{r} 15 \\ \times\ 5 \\ \hline 75 \end{array}$$

? = 75

15 (1) + 15 (2) + 15 (3) + … + 15 [5]

6.

$$\begin{array}{r} 10 \\ \times\ 9 \\ \hline 90 \end{array}$$

? = 90

10 (1) + 10 (2) + 10 (3) + … + 10 [9]

Directions: Compute the product. Then, write the numbers that correctly complete the model.

1.

$$\begin{array}{r} 22 \\ \times\ 5 \\ \hline 110 \end{array}$$

? = 110

22 (1) + 22 (2) + 22 (3) + … + 22 [5]

2.

$$\begin{array}{r} 12 \\ \times\ 9 \\ \hline 108 \end{array}$$

? = 108

12 (1) + 12 (2) + 12 (3) + … + 12 [9]

3.

$$\begin{array}{r} 16 \\ \times\ 6 \\ \hline 96 \end{array}$$

? = 96

16 (1) + 16 (2) + 16 (3) + … + 16 [6]

4.

$$\begin{array}{r} 50 \\ \times\ 7 \\ \hline 350 \end{array}$$

? = 350

50 (1) + 50 (2) + 50 (3) + … + 50 [7]

5.

$$\begin{array}{r} 17 \\ \times\ 6 \\ \hline 102 \end{array}$$

? = 102

17 (1) + 17 (2) + 17 (3) + … + 17 [6]

6.

$$\begin{array}{r} 100 \\ \times\ 8 \\ \hline 800 \end{array}$$

? = 800

100 (1) + 100 (2) + 100 (3) + … + 100 [8]

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