



3rd Grade

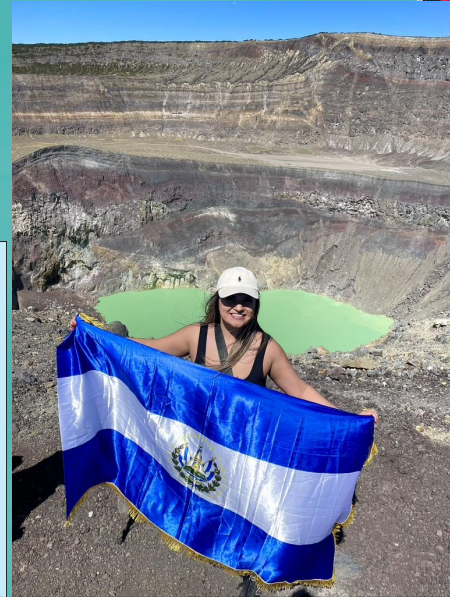
Relationship between multiplication and division



Maci Martelloni & Kathia Osorio

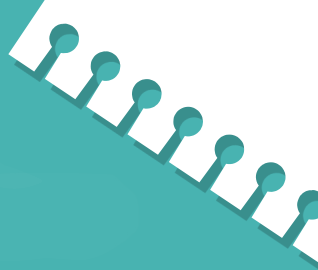


All about me

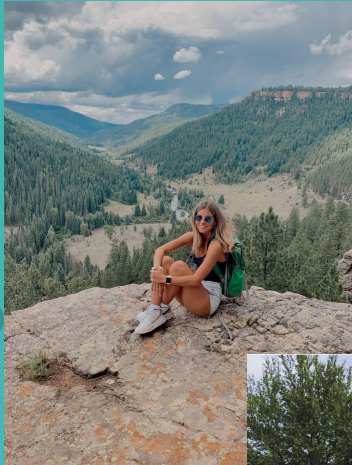




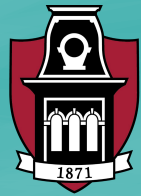
All about me



4



7



UNIVERSITY OF
ARKANSAS





Introduction

Multiplication and division are inverse properties, meaning that multiplying two numbers to get a product will be the same as dividing that product by one of the numbers to get the other number.

4

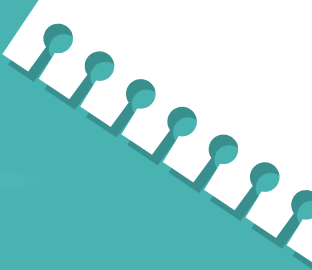
Example: $3 \times 4 = 12$... so that means that $12 \div 3 = 4$

7





Multiplication Properties



If $3 \times 4 = 12$, then $4 \times 3 = 12$ because it uses the same numbers, just in a different order.

4

It applies to division as well, so if $12 \div 3 = 4$, then $12 \div 4 = 3$

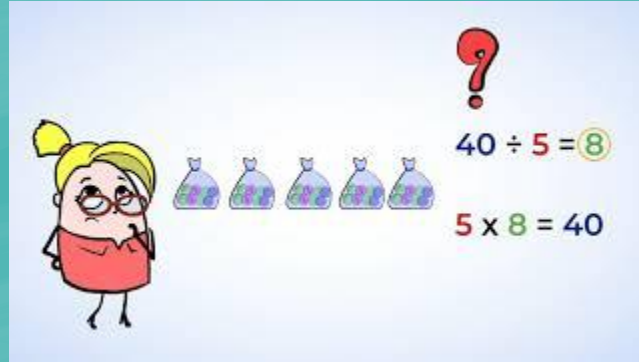
7

Example: If $2 \times _ = 18$, then $18 \div _ = 9$



8 + 3

How it works?



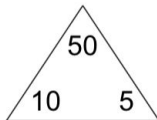
<https://www.youtube.com/watch?v=fc2zif8oKt8>



Fact families: multiply and divide

Math Facts Practice Worksheet

Complete each family of facts.

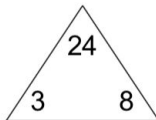


$$\boxed{5} \times \boxed{10} = \boxed{}$$

$$\boxed{10} \times \boxed{5} = \boxed{}$$

$$\boxed{50} \div \boxed{10} = \boxed{}$$

$$\boxed{50} \div \boxed{5} = \boxed{}$$

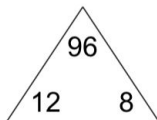


$$\boxed{} \times \boxed{} = \boxed{}$$

$$\boxed{} \times \boxed{} = \boxed{}$$

$$\boxed{} \div \boxed{} = \boxed{}$$

$$\boxed{} \div \boxed{} = \boxed{}$$

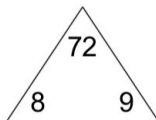


$$\boxed{} \times \boxed{} = \boxed{}$$

$$\boxed{} \times \boxed{} = \boxed{}$$

$$\boxed{} \div \boxed{} = \boxed{}$$

$$\boxed{} \div \boxed{} = \boxed{}$$



$$\boxed{} \times \boxed{} = \boxed{}$$

$$\boxed{} \times \boxed{} = \boxed{}$$

$$\boxed{} \div \boxed{} = \boxed{}$$

$$\boxed{} \div \boxed{} = \boxed{}$$

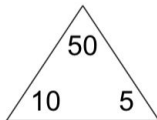




Fact families: multiply and divide

Math Facts Practice Worksheet

Complete each family of facts.

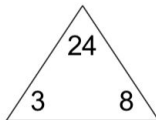


$$5 \times 10 = 50$$

$$10 \times 5 = 50$$

$$50 \div 10 = 5$$

$$50 \div 5 = 10$$

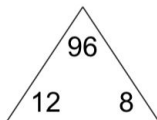


$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$\square \div \square = \square$$

$$\square \div \square = \square$$

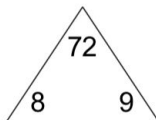


$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$\square \div \square = \square$$

$$\square \div \square = \square$$



$$\square \times \square = \square$$

$$\square \times \square = \square$$

$$\square \div \square = \square$$

$$\square \div \square = \square$$

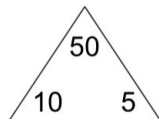


9

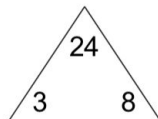
Fact families: multiply and divide

Math Facts Practice Worksheet

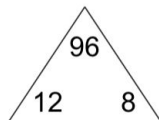
Complete each family of facts.



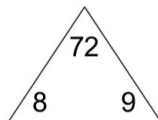
$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} 3 \times 4 = \square \\ 4 \times 3 = \square \\ 24 \div 4 = \square \\ 24 \div 3 = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$

5

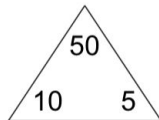




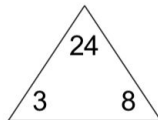
Fact families: multiply and divide

Math Facts Practice Worksheet

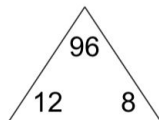
Complete each family of facts.



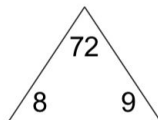
$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} 3 \times 4 = 24 \\ 4 \times 3 = 24 \\ 24 \div 4 = 3 \\ 24 \div 3 = 4 \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$

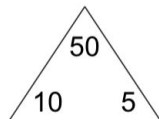




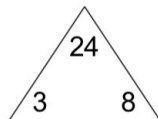
Fact families: multiply and divide

Math Facts Practice Worksheet

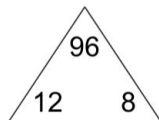
Complete each family of facts.



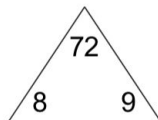
$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} 12 \times 8 = \square \\ 8 \times 12 = \square \\ 96 \div 8 = \square \\ 96 \div 12 = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$

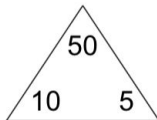




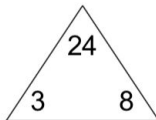
Fact families: multiply and divide

Math Facts Practice Worksheet

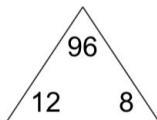
Complete each family of facts.



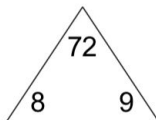
$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} 12 \times 8 = 96 \\ 8 \times 12 = 96 \\ 96 \div 8 = 12 \\ 96 \div 12 = 8 \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$

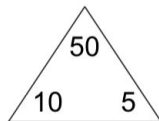


9

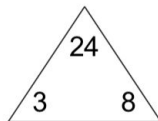
Fact families: multiply and divide

Math Facts Practice Worksheet

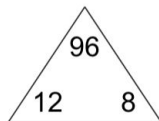
Complete each family of facts.



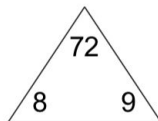
$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} 8 \times 9 = \square \\ 9 \times 8 = \square \\ 72 \div 8 = \square \\ 72 \div 9 = \square \end{array}$$

5

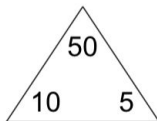




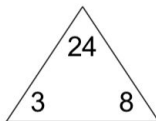
Fact families: multiply and divide

Math Facts Practice Worksheet

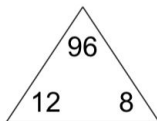
Complete each family of facts.



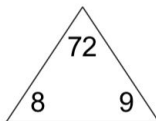
$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} \square \times \square = \square \\ \square \times \square = \square \\ \square \div \square = \square \\ \square \div \square = \square \end{array}$$



$$\begin{array}{l} 8 \times 9 = 72 \\ 9 \times 8 = 72 \\ 72 \div 8 = 9 \\ 72 \div 9 = 8 \end{array}$$





More Properties

$4 \times 5 \times 2$ can be found by $4 \times 5 = 20$, then $20 \times 2 = 40$
And can also be found by $5 \times 2 = 10$, then $10 \times 4 = 40$

EXAMPLE:

Find: $2 \times 3 \times 5$

$2 \times 3 = \square$, then $\square \times 5 = \square$





More Properties

$4 \times 5 \times 2$ can be found by $4 \times 5 = 20$, then $20 \times 2 = 40$
And can also be found by $5 \times 2 = 10$, then $10 \times 4 = 40$

EXAMPLE:

Find: $2 \times 3 \times 5$

$2 \times 3 = \boxed{6}$, then $\boxed{6} \times 5 = \boxed{30}$



YOUR TURN!

The Inverse Relationship of Division

Match the division equation on the left with its unverse multiplication equation on the right

$12 \div 2 = 6$

$5 \times 6 = 30$

$18 \div 9 = 2$

$6 \times 4 = 24$

$30 \div 6 = 5$

$6 \times 2 = 12$

$24 \div 4 = 6$

$2 \times 7 = 14$

$42 \div 6 = 7$

$2 \times 9 = 18$

$14 \div 7 = 2$

$7 \times 6 = 42$

Complete the division problems and then write out its inverse equations

1.) $21 \div 7 =$

2.) $40 \div 5 =$

3.) $34 \div 2 =$

4.) $21 \div 7 =$

5.) $25 \div 5 =$

6.) $15 \div 3 =$





THE END!

