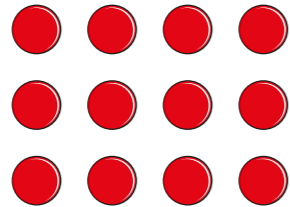


Properties of multiplication and division

1



a) Which two multiplications are represented by the array?

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

b) Which two divisions are represented by the array?

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

c) Draw a different array that can be made from the same number of counters.

d) Complete the fact family for your array.

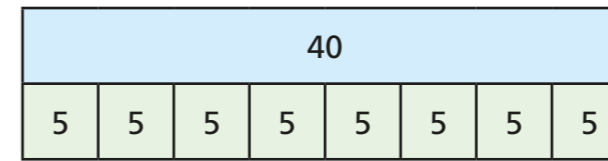
$$\begin{array}{cc} \square \times \square = \square & \square \div \square = \square \\ \square \times \square = \square & \square \div \square = \square \end{array}$$

e) Discuss with a partner how the array shows that multiplication is commutative.



2

Write the fact family shown in the bar model.



$$\begin{array}{cc} \square \times \square = \square & \square \div \square = \square \\ \square \times \square = \square & \square \div \square = \square \end{array}$$

Scott thinks that $40 \div 8$ is the same as $8 \div 40$

Do you agree with Scott? _____

Discuss your answer with a partner.

3

Write true or false next to each statement.

| Statement | True or False |
|---|---------------|
| $(5 \times 2) \times 3 = 5 \times (2 \times 3)$ | |
| $5 \times 2 \times 3 = 2 \times 3 \times 5$ | |
| $3 \times 10 = 3 \times 2 \times 5$ | |

Explain your reasons for each decision.

4

Here are two statements.

$$(a \times b) \times c = a \times (b \times c)$$

$$g \times m \times b = b \times m \times g$$

Explain why both of these statements are true.

5 Draw a bar model to illustrate $7d = e$

What other facts does your bar model show?

6



Doubling and doubling again is a quick way of multiplying by 4

Use Dexter's method to complete the calculations.

a) $21 \times 4 =$ b) $13 \times 4 =$ c) $29 \times 4 =$

How can Dexter's method be altered to quickly multiply by 8?



7 Aisha wants to use a quick method to divide numbers by 5

Tick each of the methods that will work.

- | | |
|---|---|
| <p>A <input style="width: 100px; height: 30px;" type="text" value="÷ 10 then × 2"/> <input style="width: 20px; height: 20px;" type="checkbox"/></p> <p>B <input style="width: 100px; height: 30px;" type="text" value="÷ 10 then ÷ 2"/> <input style="width: 20px; height: 20px;" type="checkbox"/></p> | <p>C <input style="width: 100px; height: 30px;" type="text" value="× 2 then ÷ 10"/> <input style="width: 20px; height: 20px;" type="checkbox"/></p> <p>D <input style="width: 100px; height: 30px;" type="text" value="÷ 2 then × 10"/> <input style="width: 20px; height: 20px;" type="checkbox"/></p> |
|---|---|

Use one of the correct methods to complete these calculations.

State which method you used (A, B, C or D).

$120 \div 5 =$ I used method ____

$14 \div 5 =$ I used method ____

$4.8 \div 5 =$ I used method ____

Which method do you prefer?

8 Tick the statements that are in the same fact family as $13 \times 46 = 598$

- | | | |
|--------------------|----------------------|----------------------|
| $46 \div 3 = 598$ | $46 \div 598 = 13$ | $598 = 46 \times 13$ |
| $13 \div 598 = 46$ | $598 \div 46 = 13$ | $598 \div 13 = 46$ |
| $46 = 13 \div 598$ | $598 = 13 \times 46$ | $13 = 598 \div 46$ |

Discuss your answers with a partner. Are they the same?

