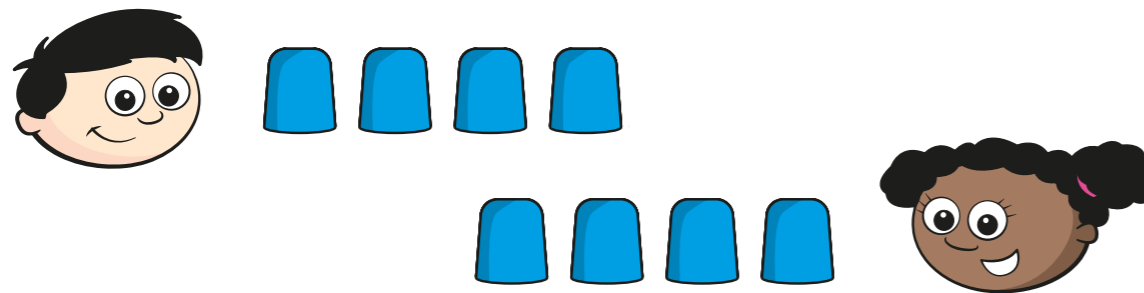


# Multiplication of directed numbers

1 Dexter and Whitney each have 4 cups.



a) Each of Dexter's cups contains these counters.



What is the total value of Dexter's counters?

Complete the multiplication to represent this.

$$4 \times \square = \square$$

b) Each of Whitney's cups contains these counters.



What is the total value of Whitney's counters?

Complete the multiplication to represent this.

$$4 \times \square = \square$$

c) What is the same and what is different?

Talk about it with a partner.



2 Ron has 7 cups.

Each cup contains these counters.



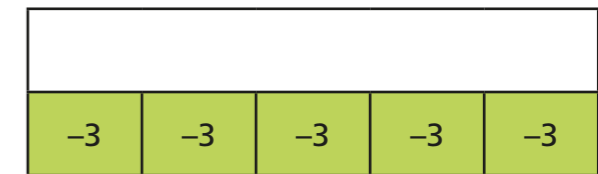
Complete the multiplication to work out the total value of Ron's counters.

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

3 Use the bar models to help you fill in the missing numbers in the calculations.

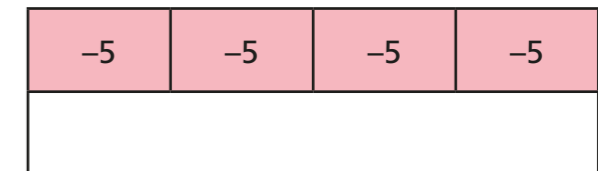
a)  $-3 \times \square = \square$

$$5 \times \square = \square$$



b)  $-5 \times \square = \square$

$$4 \times \square = \square$$



4 Complete the sequence of multiplications.

$$-4 \times 4 = \square$$

$$-4 \times -1 = \square$$

$$-4 \times 3 = \square$$

$$-4 \times -2 = \square$$

$$-4 \times 2 = \square$$

$$-4 \times -3 = \square$$

$$-4 \times 1 = \square$$

$$-4 \times -4 = \square$$

$$-4 \times 0 = \square$$

What do you notice?



5 Complete the multiplication grid.

x	3	2	1	0	-1	-2	-3
3							
2							
1							
0							
-1							
-2							
-3							

Talk to a partner about how you completed the grid and what patterns you have noticed.

6 Work out the multiplications.

a)  $5 \times 6 =$

$5 \times -6 =$

$-5 \times 6 =$

$-5 \times -6 =$

b)  $-3 \times 4 =$

$-4 \times -3 =$

c)  $-5 \times -8 =$

$-5 \times 8 =$

7 Work out the calculations.

$-3 \times 5 \times 2 =$

$-5 \times -2 \times 3 =$

$3 \times 2 \times -5 =$

$-3 \times -2 \times -5 =$

8 Fill in the missing numbers.

a)  $-9 \times$    $= -36$

d)  $9 \times$    $= 36$

b)  $-12 \times$    $= 36$

e)  $18 \times$    $= -36$

c)  $36 =$    $\times -6$

f)  $-36 \times$    $= 36$

9 Tick the correct calculations.

a)  $-3 \times 4 = -4 \times 3$

c)  $(-5)^2 = 5^2$

b)  $8 \times 5 = -5 \times -8$

d)  $-5^2 = (-5)^2$

10 The product of the three number cards is 48

All of the cards are integers and at least one of the cards is negative.

How many different solutions can you find?

Is it possible for all three numbers to be negative? Explain your answer.