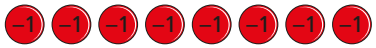
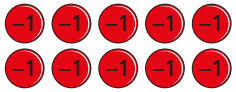
Multiplication and division of directed numbers

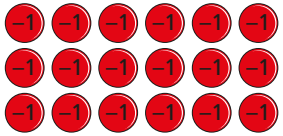
1 Use the diagrams to help you fill in the missing numbers.

a) 

$-8 \div 2 =$ ☐ and $-8 \div 4 =$ ☐

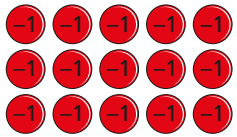
b) 

$-10 \div 2 =$ ☐ and $-10 \div 5 =$ ☐

c) 

$-18 \div 3 =$ ☐ and $-18 \div 6 =$ ☐

2 Write two multiplications and two divisions represented by this array.



3 Use the bar models to help you complete the calculations.

a) $-4 \times$ ☐ = ☐

$3 \times$ ☐ = ☐

$-12 \div$ ☐ = ☐

$-12 \div$ ☐ = ☐

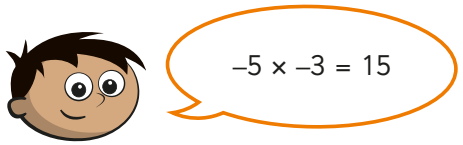
–4	–4	–4
–12		

b) ☐ ÷ ☐ = ☐

☐ ÷ ☐ = ☐

–18					

4



Use Amir's multiplication to work out the calculations.

$15 \div -3$ $15 \div -5$

5 Complete the divisions.

$-3 \div 1$	$-3 \div -1$
$-2 \div 1$	$-2 \div -1$
$-1 \div 1$	$-1 \div -1$
$0 \div 1$	$0 \div -1$

What do you notice?

6 Complete the divisions.

a) $-7 \div -1$ **c)** $-8 \div -2$

b) $-8 \div -1$ **d)** $-30 \div -6$

7 Work out the calculations.

a) -3×-7 -3×7

$21 \div -7$ $-21 \div -3$

b) -10×-13.4 -13.4×10

$134 \div -10$ $-134 \div -13.4$

b) ☐ ÷ ☐ = ☐

☐ ÷ ☐ = ☐

–18					

4

–5 × –3 = 15

Use Amir's multiplication to work out the calculations.

15 ÷ –3 15 ÷ –5

5 Complete the divisions.

–3 ÷ 1	–3 ÷ –1
–2 ÷ 1	–2 ÷ –1
–1 ÷ 1	–1 ÷ –1
0 ÷ 1	0 ÷ –1

What do you notice?

6 Complete the divisions.

a) –7 ÷ –1 **c)** –8 ÷ –2

b) –8 ÷ –1 **d)** –30 ÷ –6

7 Work out the calculations.

a) –3 × –7 –3 × 7

21 ÷ –7 –21 ÷ –3

b) –10 × –13.4 –13.4 × 10

134 ÷ –10 –134 ÷ –13.4

8 Work out the value of each calculation and write them in ascending order.

–4 × 8	–8 ÷ –4	–8 × –4	8 ÷ –4

9 Fill in the missing numbers.

a) ☐ ÷ –3 = –12

b) 12 ÷ ☐ = –12

c) –4.5 = ☐ ÷ 2

d) 60 = ☐ ÷ –6

e) 2 = –3 ÷ ☐

f) ☐ ÷ –8 = 24 ÷ ☐

10 In the pyramids, each number is the product of the two numbers below it.

Fill in the missing numbers.

a)

	12	
3	–2	

b)

	80	
	–8	
	–1	

11 Mo has five number cards.

Here is some information about his number cards.

- The cards are in ascending order.
- The range of the number cards is 32
- The greatest number divided by the median number is 8
- The three numbers in the middle have a product of –36

What could Mo's number cards be?

Compare answers with a partner.

How many different solutions can you find?