DIVIDE INTEGERS

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

Dividing means sharing into equal groups.

12 shared equally into 3 groups
gives 4 in each group.

12 ÷ 3 = 4



1 Share the counters equally. Draw them on the plates. Complete the division.

a)

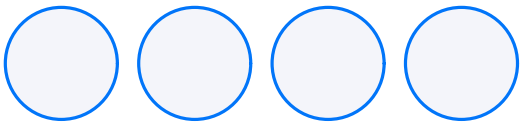




15 ÷ 3 = ☐

b)

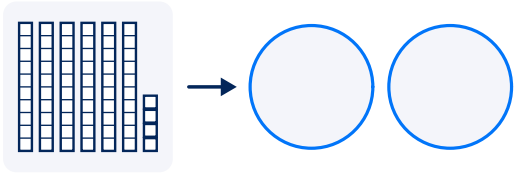




20 ÷ 4 = ☐

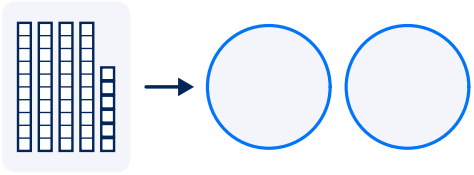
2 Share the base ten equally between the 2 plates. Complete the division.

a)



64 ÷ 2 = ☐

b)



46 ÷ 2 = ☐

3 Use short division. How many groups can you make in each column?

If there is one left over, exchange it into the next column.

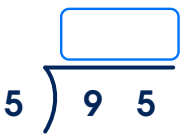
a)



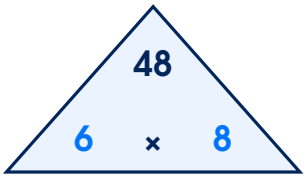
b)



c)

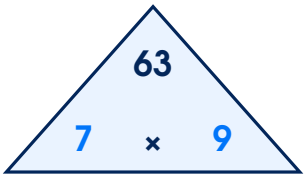


4 Use the multiplication fact to complete the divisions.



48 ÷ 6 = ☐

48 ÷ 8 = ☐



63 ÷ 7 = ☐

63 ÷ 9 = ☐

DIVIDE INTEGERS

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

Short division: divide each digit from the left.

If there is a remainder at the end, add a decimal point and a 0, then keep dividing.

47 ÷ 2 = 23 r 1 = 23.5

The remainder 1 is not 0.1, it is half of 2.

$$\begin{array}{r} 2\ 3\ .\ 5 \\ 2\overline{)\ 4\ 7\ .\ {}^{1}0} \end{array}$$

1 Use short division.

a) $3\overline{)\ 4\ 5\ 6}$ ☐

b) $7\overline{)\ 7\ 8\ 4}$ ☐

c) $5\overline{)\ 9\ 6\ 5}$ ☐

2 These divisions have remainders.

a) $4\overline{)\ 7\ 9\ .\ 0\ 0}$

79 ÷ 4 = ☐ **r** ☐

As a decimal: 79 ÷ 4 = ☐

b) $5\overline{)\ 5\ 8\ .\ 0}$

58 ÷ 5 = ☐ **r** ☐

As a decimal: 58 ÷ 5 = ☐

3 Zara says, "Dividing by 20 is the same as dividing by 10 and then dividing by 2." Show that she is right using 740 ÷ 20.

4 138 pupils go on a trip. Each minibus holds 8 pupils.

a) Work out 138 ÷ 8 as a decimal. ☐

b) How many minibuses are needed? ☐

DIVIDE INTEGERS

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

Use short division and keep going past the decimal point by adding zeros. A remainder is not a decimal digit: 47 r 1 ÷ 2 is 23.5, not 23.1. Some answers terminate (end); others recur, e.g. 85 ÷ 3 = 28.333... = 28.3 with a dot over the 3. To divide by 12, divide by 2 then by 6.

FLUENCY

1 Work out each division. Give your answers as decimals.

a) **3924 ÷ 6** ☐

b) **2735 ÷ 8** ☐

c) **517 ÷ 4** ☐

d) **85 ÷ 3** ☐

2 Divide in two steps to work out each calculation.

a) **864 ÷ 12** ☐

b) **1386 ÷ 18** ☐

c) **945 ÷ 15** ☐

REASONING

3 Four friends have a restaurant bill of £97.

a) They share it equally. How much does each person pay? ☐

b) They add a £10 tip and share the new total equally. How much each now? ☐

4 Kai writes, "37 ÷ 2 = 18 r 1 = 18.1"

a) Explain Kai's mistake.

.....

b) Write 37 ÷ 2 as a decimal. ☐

DIVIDE INTEGERS

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.
Give an example to support each answer.

a) A whole number ÷ 5 gives a terminating decimal. ALWAYS SOMETIMES NEVER

b) A whole number ÷ 3 gives a recurring decimal. ALWAYS SOMETIMES NEVER

c) When you divide by 8, the remainder can be 8. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 Fill in the missing digits.

a) 5 ☐ 4 ÷ 4 = 12 ☐ . 5

b) Find two different ways to complete ☐ 6 ÷ 8 = ☐ .5 ☐ 6 ÷ 8 = ☐ .5

3 Solve these number puzzles.

a) A number ÷ 7 = 34 remainder 5. What is the number? ☐

b) Find the smallest number greater than 100 that leaves a remainder of 1 when it is divided by 2, by 3, by 4, by 5 and by 6. ☐

★ CHALLENGE FOR ALL

4 Explore dividing by 9. Explain the pattern you notice.

a) Work out 1 ÷ 9. ☐ Work out 4 ÷ 9. ☐

b) Predict 7 ÷ 9 without dividing. ☐

c) Use your pattern to write 23 ÷ 9 as a decimal. ☐

DIVIDE INTEGERS

ANSWERS

BUILDING BLOCKS

1 a) 5 · b) 5
2 a) 32 · b) 23
3 a) 21 · b) 24 · c) 19
4 a) 8, 6 · b) 9, 7

SUPPORT

1 a) 152 · b) 112 · c) 193
2 a) 19 r 3; 19.75 · b) 11 r 3; 11.6
3 740 ÷ 10 = 74, 74 ÷ 2 = 37; and 740 ÷ 20 = 37, because 20 = 10 × 2
4 a) 17.25 · b) 18 minibuses (17 is not enough)

CORE

1 a) 654 · b) 341.875 · c) 129.25 · d) 28.333... (28.3 recurring)
2 a) 72 · b) 77 · c) 63
3 a) £24.25 · b) £26.75
4 a) The remainder 1 is 1 out of 2, which is a half (0.5), not one tenth. b) 18.5

GREATER DEPTH

1 a) Always (dividing by 5 gives tenths) · b) Sometimes (9 ÷ 3 = 3, but 10 ÷ 3 = 3.333...) · c) Never (a remainder must be less than 8)
2 a) 514 ÷ 4 = 128.5 · b) 36 ÷ 8 = 4.5 and 76 ÷ 8 = 9.5
3 a) 243 · b) 121 (120 is the smallest common multiple of 2, 3, 4, 5, 6 above 100; add 1)
4 a) 0.111... and 0.444... · b) 0.777... · c) 2.555... (23 = 2 × 9 + 5)