UNIT RATIOS (1 : N AND N : 1)

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

Find how many there are for every ONE.

For every 1 square, there are 3 circles.



2 : 6 is the same as 1 : 3

÷ 2 (2 : 6 → 1 : 3) ÷ 2

1 Complete each sentence.

a) 

For every 1 square, there are ____ circles.

b) 

For every 1 triangle, there are ____ stars.

2 Share the pizzas equally between 2 people. Then work out the other divisions.

a) 

5 pizzas ÷ 2 = ____

b) 

3 pizzas ÷ 2 = ____

c) 9 ÷ 2 = ____

d) 6 ÷ 4 = ____

3 Divide both numbers by the first number.

÷ 3 (3 : 12 → 1 : ____) ÷ 3

÷ 5 (5 : 20 → 1 : ____) ÷ 5

÷ 4 (4 : 10 → 1 : ____) ÷ 4

4 A recipe uses 2 cups of rice for every 3 cups of water.

rice 

water 

a) For 1 cup of rice, you need ____ cups of water.

b) rice : water = 1 : ____

UNIT RATIOS (1 : N AND N : 1)

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

1 : n → divide both numbers by the first number.

n : 1 → divide both numbers by the second number.

n does not have to be a whole number.

4 : 10 = 1 : 2.5 (÷ 4)

12 : 8 = 1.5 : 1 (÷ 8)

1 Write each ratio in the form shown.

÷ 6	6 : 18		1 : ☐	÷ 6
÷ 8	8 : 20		1 : ☐	÷ 8
÷ 6	9 : 6		☐ : 1	÷ 6

2 Tick the form each ratio is written in.

RATIO	1 : N	N : 1	NEITHER
1 : 6			
3.5 : 1			
2 : 5			

RATIO	1 : N	N : 1	NEITHER
1 : 0.4			
7 : 1			
3 : 3.5			

3 Here are some squares and stars.



a) squares : stars = ☐ : ☐

b) In the form 1 : n: 1 : ☐

4 A recipe uses 250 g of flour and 50 g of butter.

a) butter : flour in the form 1 : n = 1 : ☐

b) flour : butter in the form n : 1 = ☐ : 1

UNIT RATIOS (1 : N AND N : 1)

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

To write a ratio in the form 1 : n, divide both numbers by the first number; for n : 1, divide by the second number. n can be a decimal, e.g. 4 : 5 = 1 : 1.25. Unit ratios make ratios easy to compare. Change to the same units first.

FLUENCY

1 Write each ratio in the form 1 : n (a–d) or n : 1 (e–f).

a) 7 : 35 = 1 : ☐

b) 5 : 12 = 1 : ☐

c) 20 : 7 = 1 : ☐

d) 8 : 2 = 1 : ☐

e) 45 : 9 = ☐ : 1

f) 7 : 4 = ☐ : 1

2 Change to the same units, then write in the form shown.

a) 25 cm : 2 m = 1 : ☐

b) 40p : £3 = 1 : ☐

c) 600 m : 1.5 km = 1 : ☐

d) 3 kg : 750 g = ☐ : 1

REASONING

3 Class A has 12 boys and 15 girls. Class B has 10 boys and 14 girls.

Class A boys : girls = 1 : ☐ Class B boys : girls = 1 : ☐

Which class has more girls for every boy? Explain. ☐

.....

4 Sid writes,

10 ÷ 4 = 2.5, so 4 : 10 in the form n : 1 is 2.5 : 1

Explain Sid's mistake. .....

4 : 10 in the form n : 1 is ☐ : 1

UNIT RATIOS (1 : N AND N : 1)

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) In the form 1 : n, n is a whole number. ALWAYS SOMETIMES NEVER

b) If a < b, writing a : b as 1 : n gives n > 1. ALWAYS SOMETIMES NEVER

c) 1 : n and n : 1 are the same ratio. ALWAYS SOMETIMES NEVER

d) In the form n : 1, n is greater than 1. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 A ship is 100 m long. Models A and B are made to scales of 1 : 250 and 1 : 400.

a) Model A = ☐ cm Model B = ☐ cm

b) How much longer is model A than model B? (cm) ☐

3 Screen A is 1200 by 2640 pixels. Screen B is 800 by 1800 pixels (width by height).

a) width : height A is 1 : ☐ B is 1 : ☐

b) Which screen is taller compared with its width? ☐

★ CHALLENGE FOR ALL

4 A concrete mix uses cement, sand and gravel in the ratio 2 : 5 : 7.

a) cement : sand in the form 1 : n = 1 : ☐

b) cement : sand : gravel in the form 1 : m : p = 1 : ☐ : ☐

c) A builder uses 60 kg of sand. How much gravel does she use? (kg) ☐

d) There are x kg of cement. Write the total mass of the mix in terms of x. ☐

STEP 6 ANSWERS – UNIT RATIOS (1 : N AND N : 1)

ANSWERS

BUILDING BLOCKS

1 a) 4 circles · b) 2 stars
2 a) 2.5 · b) 1.5 · c) 4.5 · d) 1.5
3 3 : 12 = 1 : 4 · 5 : 20 = 1 : 4 · 4 : 10 = 1 : 2.5
4 a) 1.5 cups of water · b) 1 : 1.5

SUPPORT

1 6 : 18 = 1 : 3 · 8 : 20 = 1 : 2.5 · 9 : 6 = 1.5 : 1
2 1 : n – 1 : 6 and 1 : 0.4 · n : 1 – 3.5 : 1 and 7 : 1 · Neither – 2 : 5 and 3 : 3.5
3 a) 4 : 10 · b) 1 : 2.5
4 a) 1 : 5 · b) 5 : 1

CORE

1 a) 1 : 5 · b) 1 : 2.4 · c) 1 : 0.35 · d) 1 : 0.25 · e) 5 : 1 · f) 1.75 : 1
2 a) 25 : 200 = 1 : 8 · b) 40 : 300 = 1 : 7.5 · c) 600 : 1500 = 1 : 2.5 · d) 3000 : 750 = 4 : 1
3 Class A 1 : 1.25 · Class B 1 : 1.4. Class B has more girls for every boy (1.4 > 1.25).
4 For n : 1 you divide both numbers by the second number: 4 ÷ 10 = 0.4. Sid divided 10 by 4 (division is not commutative). 4 : 10 = 0.4 : 1

GREATER DEPTH

1 a) Sometimes – 2 : 6 = 1 : 3; 2 : 5 = 1 : 2.5 · b) Always · c) Sometimes – only when n = 1 · d) Sometimes – 6 : 3 = 2 : 1; 3 : 6 = 0.5 : 1
2 a) A 40 cm, B 25 cm · b) 15 cm
3 a) A 1 : 2.2, B 1 : 2.25 · b) Screen B
4 a) 1 : 2.5 · b) 1 : 2.5 : 3.5 · c) 84 kg · d) 7x kg (cement 2 parts = x, so 14 parts = 7x)