RATIO PROBLEM SOLVING

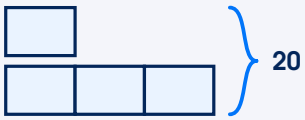
BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

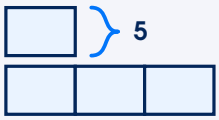
KEY IDEA

First decide what the number in the question tells you.

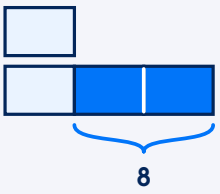
WHOLE



PART



DIFFERENCE



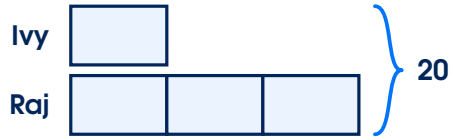
1 Is the number the whole, a part or the difference? Circle your answer.

a) Ali and Ben share 30 sweets. WHOLE PART DIFFERENCE

b) Ben gets 12 sweets. WHOLE PART DIFFERENCE

c) Ben gets 6 more sweets than Ali. WHOLE PART DIFFERENCE

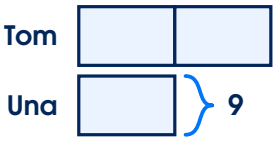
2 Ivy and Raj share 20 cupcakes in the ratio 1 : 3.



One part = ☐

Ivy gets ☐ Raj gets ☐

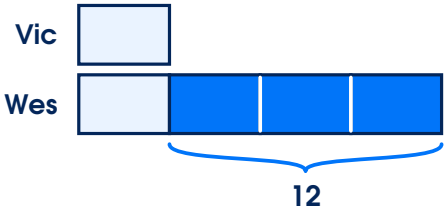
3 Tom and Una share some marbles in the ratio 2 : 1. Una gets 9 marbles.



Tom gets ☐

Total marbles ☐

4 Vic and Wes share some stickers in the ratio 1 : 4. Wes has 12 more than Vic.



One part = ☐

Vic has ☐ Wes has ☐

RATIO PROBLEM SOLVING

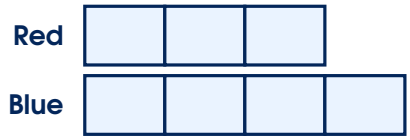
SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

1. Draw a bar model with the right number of parts.
2. **Is the number given the whole, a part or the difference? Label it.**
3. Work out one part.
4. Multiply to find what the question asks for.

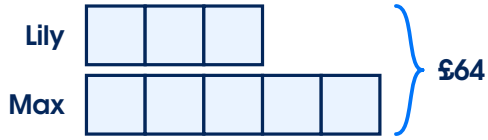
1 The ratio of red to blue counters in a bag is 3 : 4.



a) There are 36 red counters. Total = ☐

b) There are 36 blue counters. Total = ☐

2 Lily and Max share £64 in the ratio 3 : 5.



a) Lily gets £ ☐ Max gets £ ☐

b) How much more does Max get? £ ☐

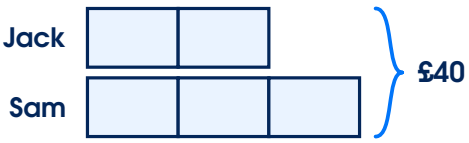
3 A class has 12 boys and 18 girls.

a) boys : girls in its simplest form = ☐ : ☐

b) Fraction that are girls: ☐/☐

c) boys : girls in the form 1 : n = 1 : ☐

4 Write a ratio question that this bar model could show. Then answer it.



My question:

.....

.....

Answer: Jack gets £ ☐ Sam gets £ ☐

RATIO PROBLEM SOLVING

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

Before you calculate, decide whether the amount given is the whole, one part or the difference. Draw a bar model and label the given amount in the right place, find one part, then answer the question that is asked. Check your answer.

FLUENCY

1 Answer each question.

a) Share 84 in the ratio 4 : 3. ☐ and ☐

b) In the ratio 5 : 2, the larger part is 65. Find the smaller part. ☐

c) In the ratio 7 : 3, the difference is 28. Find the total. ☐

2 A drink is made with cordial and water in the ratio 1 : 6.

a) How much cordial is in a 1.4 litre drink? (ml) ☐

b) water : cordial in the form n : 1 = ☐ : 1

c) Fraction water: $\frac{\square}{\square}$

REASONING

3 Blue and yellow paint are mixed in the ratio 2 : 3 to make green. Sam has 500 ml of blue paint and 600 ml of yellow paint.

What is the greatest amount of green paint he can make? (ml) ☐

Which colour runs out first? Explain. .....

4 At a rescue centre, cats : dogs = 5 : 3. Show that Dev and Nina could both be correct.

Dev: "There are 40 animals, so there are 25 cats."

Nina: "There are 10 more cats than dogs, so there are 25 cats."

.....

.....

RATIO PROBLEM SOLVING

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) If a : b = 2 : 3, then b is 1.5 times a. ALWAYS SOMETIMES NEVER

b) If a : b = 1 : n and n > 1, b is over half the total. ALWAYS SOMETIMES NEVER

c) In a : b : c, the largest share is over a third. ALWAYS SOMETIMES NEVER

d) If a : b = 3 : 2, then a – b is a third of a + b. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 The angles in a triangle are in the ratio 2 : 3 : 4.

a) What is the size of the largest angle? ☐

b) What type of triangle is it? ACUTE RIGHT-ANGLED OBTUSE

3 Ellie and Fin have money in the ratio 5 : 3. Ellie gives Fin £12. Now they have the same amount.

How much money did Ellie have at the start? £ ☐

★ CHALLENGE FOR ALL

4 A recipe for 6 flapjacks uses 120 g of oats, 75 g of butter and 45 g of syrup.

a) oats : butter : syrup in its simplest form = ☐ : ☐ : ☐

Kit has 400 g of oats, 250 g of butter and 120 g of syrup.

b) What is the greatest number of flapjacks Kit can make? ☐

c) How much oats will Kit have left over? (g) ☐

STEP 8 ANSWERS ? RATIO PROBLEM SOLVING

ANSWERS

BUILDING BLOCKS

1. a) WHOLE · b) PART · c) DIFFERENCE
2. One part = 5 · Ivy gets 5, Raj gets 15
3. Tom gets 18 · Total 27 marbles
4. 3 parts = 12, so one part = 4 · Vic has 4, Wes has 16

SUPPORT

1. a) 3 parts = 36, 1 part = 12, total 84 · b) 4 parts = 36, 1 part = 9, total 63
2. a) Lily £24, Max £40 · b) £16 more
3. a) 2 : 3 · b) 3/5 · c) 1 : 1.5
4. e.g. "Jack and Sam share £40 in the ratio 2 : 3. How much does each get?" Jack £16, Sam £24

CORE

1. a) 48 and 36 · b) 26 · c) 70
2. a) 200 ml · b) 6 : 1 · c) 6/7
3. 1000 ml. Yellow runs out first: 600 ml of yellow is 3 parts, so 1 part = 200 ml and only 400 ml of blue is needed (he has 500 ml).
4. Dev: 8 parts = 40, 1 part = 5, cats = 25. Nina: the difference is 2 parts = 10, 1 part = 5, cats = 25. Both describe 25 cats and 15 dogs.

GREATER DEPTH

1. a) Always · b) Always · c) Sometimes – 1 : 2 : 3 (3/6 = 1/2) yes; 1 : 1 : 1 gives exactly a third · d) Never – it is a fifth (1 part out of 5)
2. a) 80° (40°, 60°, 80°) · b) Acute
3. Ellie $5k - 12$ = Fin $3k + 12$, so $k = 12$ and Ellie had £60 (Fin £36).
4. a) 8 : 5 : 3 · b) 16 flapjacks (syrup limits it: 7.5 g each) · c) $400 - 16 \times 20 = 80$ g