Key Stage 2

^rractions 6 _{Answers}

Schofield&Sims



Name

Simplify fractions

Key point

Equivalent fractions are fractions with the same value. If you multiply or divide the numerator and denominator of a fraction by the same number, you will get an equivalent fraction.

When using division this is called **simplifying**. When the numerator and denominator in a fraction cannot be divided by the same number (a common factor), the fraction is in its **simplest form**.



Get started





| 12 | True or false? $\frac{39}{130}$ is a fraction in its simplest form. True False \checkmark |
|----|---|
| 13 | Circle the fraction that is not equivalent to the others in this list. $\frac{77}{88} = \frac{49}{56} = \frac{7}{11} = \frac{14}{16} = \frac{70}{80}$ |
| 14 | Which of the fractions in question 13 is in its simplest form? $\frac{7}{11}$ |
| 15 | Jo says that $\frac{24}{30}$ and $\frac{20}{25}$ are equivalent. Is she correct? Yes \checkmark No |
| 16 | Write $\frac{40}{56}$ in its simplest form. $\frac{5}{7}$ |
| 17 | A fraction with the denominator 27 is $\frac{2}{3}$ in its simplest form. What is its numerator? 18 |
| 18 | A grid of 48 squares has 18 coloured red. <u>3</u> What proportion of the grid is red? Give your answer in its simplest form. <u>8</u> |

Challenge

| 19 | Give your answers in their simplest form. In this grid 45 out of the 48 sections are gold. |
|----|---|
| | What proportion of the grid is: a) gold? <u>16</u> b) white? <u>16</u> |
| 20 | In a room, 28 of the 32 people are male. 7 Write the proportion of the people who are male, in its simplest form. 8 |
| 21 | Which of these fractions simplify to $\frac{5}{8}$? Circle them. $\begin{pmatrix} 15\\ 24 \end{pmatrix} = \frac{32}{40} = \frac{35}{48} = \begin{pmatrix} 40\\ 64 \end{pmatrix} = \begin{pmatrix} 35\\ 56 \end{pmatrix}$ |
| 22 | In a field, $\frac{30}{120}$ of the animals are sheep. |
| | Give, as a fraction in its simplest form, the proportion of the animals that are sheep. 5 |
| 23 | There are 100 questions in a test. Sam answers 85 of them correctly. What proportion did he get correct: |
| | a) as a percentage? <u>85%</u> b) as a fraction in its simplest form? <u>20</u> |
| 24 | What fraction in its simplest form is equal to: |
| | a) 75%2 $\frac{3}{4}$ b) 60%2 $\frac{3}{5}$ c) 15%2 $\frac{3}{20}$ |
| | <u>45</u> |
| 25 | Abi uses her knowledge that 0.45 = $\frac{15}{100}$ to write 0.45 as the fraction $\frac{5}{20}$ in its simplest form. |
| | Is she correct? Yes 🗸 No |
| 26 | At a football ground 2880 out of 6000 adults are men. Write this: |
| | a) as a fraction in its simplest form. a) $\frac{12}{25}$ |
| | b) as a fraction with the denominator 100. b) $\frac{48}{100}$ |
| | c) as a percentage. c) 48% |
| 27 | Write the answer to 44 ÷ 80 as: a) a fraction in its simplest form. $\frac{11}{20}$ b) a percentage. 55% |
| 28 | A full tin of beans has a mass of 480g in total. If the contents weigh 448g, what proportion of the total mass is the tin? |
| | Give your answer as a fraction in its simplest form. $\frac{1}{15}$ |

Compare and order fractions with different denominators

Key point

When comparing or ordering fractions with different denominators, **change them to equivalent fractions** so they have the same denominator. Then **compare the numerators**.



Get started





| 14 | Chan | ge the | fractic | ons to tv | ventieths and | d write the | original fra | ctions in ore | der from sr | mallest to | largest. |
|----|--------|-----------|---------|----------------------|----------------------------|-------------------|------------------------|---------------------------|---------------------|-----------------|------------------|
| | 7 | 3 | 3 | <u>1</u> | <u> 1 </u> | 3 | 7 | 3 | | | |
| | 10 | 4 | 5 | 2 _ | 2 | 5 | 10 | 4 | | | |
| 15 | To ge | et to sch | nool, A | swin w | alks <mark>7</mark> km, Sł | nanti walks | $\frac{2}{5}$ km and 0 | Cally walks $\frac{2}{5}$ | 2 <u>1</u> km. | | |
| | a) W | ho wall | ks furt | hest? | Cally | b) | Who walks | the shortes | t distance? | PA | swin |
| 16 | Put tl | hese fra | actions | s in asce | nding order. | | | | | | |
| | 3 | 17 | 2 | 3 | 3 | | 3 | 2 | | | |
| | 10 | 100 | 5 | 20 | 20 | 100 | 10 | 5 | | | |
| 17 | The t | able sh | ows th | ne race t | times for fou | r children i | n seconds. | Ellie | Finn | Tom | Anila |
| | Who | ran: a |) the f | fastest t slowest | ime? time? | Tom Finn | | $54\frac{37}{100}$ sec | $54\frac{2}{5}$ sec | 53 <u>3</u> sec | 53 <u>41</u> sec |
| 18 | Use < | : or > b | etwee | n these | fractions. $\frac{5}{6}$ | < <u>11</u> 12 | < <u>17</u> 18 | I | | | |

Challenge

| 19 | Some lengths o | f ribbons are sh | nown in inches. | Write lette | ers to show | the lengths in | descending order. |
|----|--|--|---|----------------------------------|------------------------|-----------------------------------|---------------------------|
| | A $5\frac{11}{16}$ inches | B $5\frac{5}{8}$ inches | C $5\frac{3}{4}$ inches | D 4 $\frac{13}{16}$ i | nches E | $4\frac{7}{8}$ inches | |
| | <u> </u> | <u>A</u> <u>B</u> | E | D | | 0 | |
| 20 | Order these fra $\frac{1}{2}$ $\frac{2}{3}$ $\frac{5}{9}$ | ctions from lar $\frac{7}{18} = \frac{5}{6}$ | gest to smalles <u>5</u> <u>6</u> | t. 2 3 | <u>5</u> 9 | <u>1</u> | <u>7</u> 18 |
| 21 | On a number lindenominator 60 | ne, which fract 0 lies between | ion with the $\frac{2}{12}$ and $\frac{1}{5}$? — | <u>11</u> 60 | - <u> - </u> - - 0 | | |
| 22 | Write these num $1\frac{2}{5}$ $\frac{37}{25}$ 1 | mbers in order, $\frac{11}{50}$ $\frac{123}{100}$ | from smallest $1\frac{11}{50}$ | to largest. <u>123</u> 100 | $1\frac{2}{5}$ | <u>37</u> 25 | |
| 23 | Fill in the missir | ng digit. $\frac{8}{10} < \left[\frac{1}{10} \right]$ | $\frac{5}{6} < \frac{13}{15}$ | | | | |
| 24 | Jake is buying a Which is larger | a field that is 3- the field or th | $\frac{2}{5}$ hectares in a e wood? | rea and a v | wood that i | s 3.35 hectare | s. |
| 25 | True or false? If longer than the | a film lasts for | $1\frac{29}{30}$ hour and True \checkmark Fals | a chat sho | w lasts for | $1\frac{3}{4}$ hour, the | film lasts for 13 minutes |
| 26 | Fill in the missir | ng digit. $\frac{3}{5} < -$ | $\frac{19}{30} < \frac{2}{3}$ | | | | 1 |
| 27 | What fraction, | in its simplest f | orm, lies exact | ly halfway | between $\frac{1}{4}$ | and $\frac{5}{12}$? — | 3 |
| 28 | What fraction, | in its simplest f | orm, lies exact | ly halfway | between <u>5</u> 12 | $\frac{1}{2}$ and $\frac{3}{7}$? | <u>71</u> 68 |

Add and subtract any fractions and mixed numbers

Key point

When adding or subtracting fractions, if the denominators are the same, **add or subtract the numerators only**. Use the same denominator. If they are not the same, **change them to equivalent fractions** so that the fractions all have the same denominator.

$$\frac{5}{12} + \frac{3}{4} + \frac{3}{8} = \frac{10}{24} + \frac{18}{24} + \frac{9}{24} = \frac{37}{24} = 1\frac{13}{24}$$

To add or subtract mixed numbers, **change the fractions to equivalent fractions so they have the same denominator**. **The whole numbers can be treated separately**, but be careful when subtracting in case the fraction in the first mixed number is smaller than the fraction in the second mixed number.

$$5\overline{\smash{\big|}\frac{1}{3}\big|} - 2\overline{\smash{\big|}\frac{3}{4}\big|} = 5\overline{\smash{\big|}\frac{4}{12}\big|} - 2\overline{\smash{\big|}\frac{9}{12}\big|} = 5\overline{\smash{\big|}\frac{4}{12}\big|} - 2 - \frac{9}{12} = 3\overline{\smash{\big|}\frac{4}{12}\big|} - \frac{9}{12} = 2\frac{7}{12}$$

Get started





| 12 | Subtract $3\frac{3}{4}$ from | $5\frac{1}{4}$ and give you | ir answer as a mix | ed number in its | simplest form. $1\frac{1}{2}$ | | | | |
|-----|--|--|--|---|---------------------------------------|-----------------|--|--|--|
| 13 | Find the total and | l give your answe | r as a mixed num | ber. $\frac{1}{3} + \frac{3}{5} + \frac{2}{15} =$ | $=$ 1 $\frac{1}{15}$ | | | | |
| 14 | Count back $1\frac{7}{10}$ f | rom $8\frac{3}{5}$. What nu | umber do you rea | ch? $6\frac{9}{10}$ | | | | | |
| 15 | Find the total of $\frac{1}{6}$ | $\frac{1}{5} + \frac{3}{4} + \frac{1}{3}$. Give t | he answer as a m | ixed number in it | s simplest form | <u>1</u> 4 | | | |
| 16 | Find the sum of $\frac{3}{8}$, $\frac{3}{4}$ and $\frac{5}{6}$. How much less than 2 is the answer? $\frac{1}{24}$ | | | | | | | | |
| 17 | Write the answer | to $\frac{7}{10} + \frac{3}{5} + \frac{11}{15}$ as | s an improper fra | ction and as a mi | xed number. $\frac{30}{30}$ | $2\frac{1}{30}$ | | | |
| 18 | What is $\frac{7}{8} - \frac{5}{24}$ in | its simplest form | ? | | | | | | |
| Cha | llenge | | | | | | | | |
| 19 | How many hours | is the sum of $4\frac{3}{4}$ | hours and $1\frac{1}{3}$ ho | ur as a mixed nur | mber? $6\frac{1}{12}$ hr | | | | |
| 20 | How much longer | than six inches is | the total length | of three ribbons | with these lengths? | \bigcirc | | | |
| | $2\frac{11}{16}$ inches 1 | $\frac{5}{8}$ inches $1\frac{3}{4}$ | inches 16 | inches | | | | | |
| 21 | A runner jogs $3\frac{2}{5}$ | km slowly to war | m up and then ru | $105 6 \frac{7}{10} \text{ km at a factors}$ | aster pace. | | | | |
| | How much more t | han 10km does h | e go in total? Giv | e your answer as | : | | | | |
| | a) a fraction of a | km. <u>10</u> kr | m b) a decima | 1. 0.1 km | | | | | |
| 22 | True or false? The | answer to this qu | uestion is 4. $6\frac{-}{5}$ - | $-4\frac{1}{2} + 2\frac{1}{10}$ True | False | | | | |
| 23 | From a full 4-pint into a jug. How m | bottle of milk, M nuch milk remains | aria pours $\frac{7}{10}$ pin in the bottle? Gi | ts into a saucepa ve your answer a | n and then $2\frac{3}{4}$ pints s: | | | | |
| | a) a fraction in its | s simplest form | <u></u> |) a decimal | 9.55 pt | MILK | | | |
| 24 | $1\frac{2}{5}$ $\frac{37}{25}$ 1 | 11 123 50 100 nu | ok at these fraction mbers in the box | ons. Find the tota . Give your answe | I of the largest and sn er as: | nallest | | | |
| | a) a mixed number | er in its simplest f | orm. $2\frac{7}{10}$ | b) a decimal. | 2.7 | | | | |
| 25 | A recipe uses $\frac{3}{5}$ kg |) of flour, 0.35kg | of sugar and $\frac{1}{4}$ kg | of butter. What | is the total mass of the | e ingredients: | | | |
| | a) in grams? 12 | 2 <u>00 g b)</u> in | kilograms? <u>1</u> . | 2_kg Also ac | cept 1 ¹ / ₅ kg | | | | |
| 26 | How much larger | is a field with an | area of $27\frac{3}{4}$ hect | ares than a field | that is $13\frac{19}{20}$ hectares? |) | | | |
| | Give the answer in | n its simplest forn | n. $13\frac{1}{5}$ hect | ares | | | | | |
| 27 | The table shows la | ap times of a raci | ng car in seconds. | What is the tota | l time of all four laps? | | | | |
| | lap 1 | lap 2 | lap 3 | lap 4 | 1 min 3 | 3 <u>16</u> sec | | | |
| | $16\frac{57}{100}$ sec | $14\frac{2}{5}$ sec | $19\frac{7}{10}$ sec | $12\frac{49}{100}$ sec | | 100 | | | |

28 Find the answer as a mixed number in its simplest form. $6\frac{29}{39} - 6\frac{12}{13} + 2\frac{1}{3} = 2\frac{2}{13}$

Multiply pairs of proper fractions

Key point

To multiply fractions, **multiply the numerators to give the numerator** and **multiply the denominators to give the denominator**. Give answers in their simplest form.



Sometimes, to make multiplication easier, you can divide a numerator and a denominator by the same number (a common factor). This is called **cancelling**.

 $\frac{7}{8} \times \frac{12}{13} = \frac{7}{28} \times \frac{12}{13} = \frac{7 \times 3}{2 \times 13} = \frac{21}{26}$ Here divide **both** 12 and 8 by 4.

Get started





Divide fractions by whole numbers

Key point

To find a **unit fraction** of a **whole number**, use **division**. For example, to find $\frac{1}{5}$ of a whole number you can divide by 5.

To divide a **fraction** by a **whole number**, use **multiplication**. For example, to divide a fraction by **5** you can multiply by $\frac{1}{5}$.



Get started



| 9 | What must you divide $\frac{3}{4}$ by to get $\frac{3}{24}$?6 |
|----|---|
| 10 | Write the answer to $\frac{2}{3} \div 4$ in its simplest form. $\frac{1}{6}$ |
| 11 | Answer this. $\frac{2}{7} \div 5 = \boxed{\frac{2}{35}}$ |
| 12 | Fill in the missing numbers. $\frac{12}{18} \div 6 = \frac{12}{18} \times \frac{1}{6} = \frac{2}{18} = \frac{1}{9}$ |
| 13 | True or false? $\frac{5}{8} \div 10 = \frac{1}{16}$ True \checkmark False |
| 14 | Find the missing number. $\frac{3}{7} \div 6 = \boxed{\frac{1}{14}}$ |

| 15 | Write the answer to $\frac{9}{10} \div 3$ in its simplest form. $\frac{3}{10}$ |
|-----|--|
| 16 | True or false? These two questions have the same answer. $\frac{3}{10} \div 3$ and $\frac{2}{5} \div 4$ True \checkmark False |
| 17 | If 3 people equally share $\frac{5}{8}$ of a pizza, what fraction of the whole pizza do they each get? $\frac{5}{24}$ |
| 18 | A lesson that lasts $\frac{5}{6}$ of an hour is split into 10 equal sections. Tick the two fractions that show the length of each section. $\frac{50}{6}$ hr \checkmark $\frac{5}{60}$ hr \checkmark $\frac{50}{60}$ hr \bigcirc $\frac{1}{12}$ hr \checkmark |
| Cha | llenge |
| 19 | A plank that is $\frac{7}{10}$ m is cut into 14 equal lengths. What fraction of a metre is each length?m m |
| 20 | How much greater is $\frac{15}{16} \div 5$ than $\frac{3}{8} \div 6$? $\frac{1}{8}$ Also accept $\frac{2}{16}$ |
| 21 | What fraction when divided by 4 gives $\frac{7}{32}$? $\frac{7}{8}$ |
| 22 | Chloe has grown a sunflower that is $\frac{9}{10}$ m tall. It is six times as tall as her brother's sunflower. How tall is her brother's sunflower? Give your answer as: |
| | a) a fraction in its simplest form. $\frac{3}{20}$ m b) a fraction in hundredths. $\frac{15}{100}$ m |
| | c) a decimal. <u>0.15</u> m |
| 23 | 3 4 5 6 8 Choose three different digits from the box to make a question with the answer one-quarter. $\begin{bmatrix} 6 \\ 8 \end{bmatrix} \div \begin{bmatrix} 3 \\ 9 \end{bmatrix} = \frac{1}{4}$ |
| 24 | A toy train travels at $\frac{3}{5}$ km per hour. Divide $\frac{3}{5}$ by 60 to find the distance it travels in a minute. Give your answer: a) as a fraction of a kilometre, in its simplest form. $\frac{1}{100}$ km b) in metres. 10 m |
| 25 | A bottle of juice holds $\frac{4}{5}$ litre. The juice is equally shared into 10 glasses. |
| | a) as a fraction of a litre. $\frac{2}{25}$ l b) in millilitres. 80 ml |
| 26 | Write the answer to $\frac{24}{25} \div 8$ as a decimal |
| 27 | A recipe for making 24 biscuits uses $\frac{1}{4}$ kg of flour, 0.2kg of sugar and $\frac{3}{8}$ kg of butter. How much of each ingredient is needed to make only 8 biscuits? Give the answers in their simplest form. $\begin{array}{c}1\\1\\1\end{array}$ kg of flour $\begin{array}{c}1\\15\end{array}$ kg of sugar $\begin{array}{c}1\\8\end{array}$ kg of butter |
| 28 | The distance from A to C is 8 times the distance from A to B. |
| | Find the distance from A to B as a decimal in kilometres. 0.07 km $\frac{28}{50}$ km |

Relate fractions to division and find decimal equivalents

Key point

When one number is divided by another, the answer can be written as a fraction.

For example 3 pies are shared equally between 8 people. Each pie can be split into eighths. Each person can have an eighth from each pie, so each person has $\frac{3}{8}$ altogether.



You can use division to write a fraction as a decimal. Some fractions will need to be simplified first. $\frac{12}{40} = \frac{3}{10} = 3 \div 10 = 0.3$

 $\frac{3}{4} = 3 \div 4 \qquad \frac{0.75}{4 \ 3.^{3}0^{2}0} \qquad \text{so } \frac{3}{4} = 0.75 \qquad \frac{5}{8} = 5 \div 8 \qquad \frac{0.625}{8 \ 5.^{5}0^{2}0^{4}0} \qquad \text{so } \frac{5}{8} = 0.625$

Get started



| 13 | Twenty-one melons are shared equally between 28 children. |
|-----|--|
| | What fraction of a melon does each get? $21 \\ 28 \\ 4 \\ 4$ |
| 14 | A machine cuts a 32cm length of wire into 48 equal lengths. 2 What is the length of each piece as a fraction in its simplest form? 3 cm |
| 15 | True or false? 25 \div 40 and 35 \div 56 have the same answer when written as a decimal. True \checkmark False |
| 16 | An 8m length of ribbon is cut into 40 equal strips. Write, as a decimal, the length of each strip. |
| 17 | Divide 37 by 4 and give your answer as a decimal. 4 3 7.0 0 9.25 |
| 18 | Use written division to help you convert to $\frac{1}{8}$ a decimal. 8 1.0 0 0 0.125 |
| Cha | llenge |
| 19 | Find and circle the fractions and decimals equivalent to 56 ÷ 80. |
| 20 | Ahmed says that £3 divided by 4 is $\frac{3}{4}$ of £1 and this is £0.75. Is he correct? Yes \checkmark No \square |
| 21 | What is 33kg divided by 10 as a mixed number and as a decimal? $3\frac{3}{10}$ kg and 3.3 kg |
| 22 | Use written division to help you convert $\frac{7}{8}$ to a decimal. <u>0.875</u> |
| 23 | As a decimal, what length in kilometres is one-eighth of 7km? <u>0.875</u> km |
| 24 | True or false? $\frac{5}{8} = 0.635$ True False |
| 25 | Compare these two expressions. Choose <, > or = to write in the box. $36 \div 54$ > $\frac{1}{3}$ |
| 26 | This division has been started to find the decimal equivalent of $\frac{5}{6}$.0.8Write the answer to four decimal places.0.83330.83330.5 \cdot 0 0 |
| 27 | Use division to help you join each fraction to its equivalent decimal (to three decimal places). |
| | $\frac{5}{8}$ $\frac{1}{3}$ $\frac{1}{9}$ $\frac{4}{9}$ $\frac{2}{9}$ |
| | |
| | U.444 U.625 U.333 U.222 U.111 |
| 28 | to six decimal places. |
| | a) $\frac{1}{11}$ <u>0.090909</u> b) $\frac{2}{11}$ <u>0.181818</u> c) $\frac{3}{11}$ <u>0.272727</u> |

Check-up test 1





24 marks

Multiply decimals by whole numbers

Key point

It is important to know the value of the digits in decimals and to be able to make them into fractions. The headings in the grid stand for ones, tenths, hundredths and thousandths.

| | 0 | t | h | th |
|----------------------|-----|---|---|----|
| <u>375</u> 1000 = | 0 . | 3 | 7 | 5 |
| $\frac{7}{100} =$ | 0 . | 0 | 7 | |
| $\frac{13}{10} =$ | 1 . | 3 | | |
| <u>1848</u> = | 1 . | 8 | 4 | 8 |

When multiplying a decimal by a whole number, it can be easier to convert the decimal to a fraction to multiply it. You can then convert it back to a decimal.

When multiplying a fraction by a whole number, only multiply the numerator by the whole number.

$$0.21 \times 7 = \frac{21}{100} \times 7 = \frac{147}{100} = 1.47$$

Get started





- **23** Each bottle contains 0.3 litres of lemonade. How much lemonade is in a box of 12 bottles? <u>3.6</u> l
- A boat travels at 0.7km per hour. If it stays at the same speed, how far will it travel in 24 hours?
 16.8 km
- **25** How much heavier are 21 packets of these crisps than 2 packets of these biscuits? Give your answer in kilograms. <u>0.03</u> kg



- **26** $0.7 \times 0.7 = \frac{7}{10} \times \frac{7}{10} = \frac{49}{100}$ Oliver uses the What is his a
 - Oliver uses this fact to help him write the answer to 0.7^2 as a decimal. What is his answer? 0.49
- 27 A square has sides of 0.4m. What is: a) its perimeter? <u>1.6</u> m b) its area? <u>0.16</u> m²
- **28** 17 × 6 = 102
- Use this fact to help you answer each of these questions.
- a) $\frac{17}{100} \times 6 = \frac{102}{100}$ b) $\frac{17}{1000} \times 6 = \frac{102}{1000}$ c) $0.17 \times 6 = 1.02$ d) $0.017 \times 6 = 0.102$

Multiply and divide by 10, 100 or 1000

Key point

When **multiplying by 10**, **100** or **1000** the digits **move to the left** (one, two or three places). When **dividing by 10**, **100** or **1000** the digits **move to the right** (one, two or three places).

| | Th | н | т | 0 | t | h | th | |
|---|----|-----|---|---|---|---|------|--------------------|
| | | | | 0 | 7 | 0 | 3 | × 1000 |
| = | | 7 🗲 | 0 | 3 | | | | 0.703 × 1000 = 703 |
| [| Th | н | т | 0 | + | h | th | |
| | | | | | | | - CH | |
| | | 9 | 3 | 2 | • | | | ÷ 10 |
| = | | | 9 | 3 | 2 | | | 932 ÷ 10 = 93.2 |

Get started

| 1 | How many places to the right do the digits move when dividing by 100? 2 How many places to the left do the digits move when multiplying by 1000? | | | | | | | | | | |
|---|--|-----------------------|-----------|----------|------|-------|----------------|--------------|-------------|--------|--|
| 2 | т | 0 | t | h | th | _ | | 2 | | | |
| | | 8 . | | | | | 5 Wha | t is 0.004 > | < 1000? | 4 | |
| Divide the number above by 100, using the grid to help.6What is 6 divided by 1000, as a decir 0.006 | | | | | | | | mal? | | | |
| 3 | т | 0 | t | h | th | | 7 3.2 × | 10 = 3 | 2 | | |
| | | 0 | 0 | 5 | | | 8 True | or false? | 1.2 ÷ 100 = | = 0.12 | |
| | Multiply the number above by 100, using the grid to help5 | | | | | | | | | | |
| Nov | v try th | ese | | | | | | | | | |
| 9 | Complet | e the tak | ole. | | × 10 | × 100 | × 1000 | ÷ 10 | ÷ 100 | ÷ 1000 | |
| | | | | 5.1 | 51 | 510 | 5100 | 0.51 | 0.051 | 0.0051 | |
| 10 | What is (| 0.42 mul [.] | tiplied b | oy 1000? | 420 | _ | | | | | |
| 11 | Divide 170 by 1000 | | | | | | | | | | |

12 What number when divided by 100 gives 0.04? 4

13 0.26 × 1000 = **260**

14 How many times greater than 0.205 is 20.5? 100

 \sim

| 15 | Ten people must all pay equal amounts for a camera costing £197. |
|-----|---|
| | How much should they each pay? £ 19.70 |
| 16 | A 13m line is split into 100 equal parts. Give the length of each part: |
| | a) in metres. <u>0.13</u> m b) in centimetres. <u>13</u> cm c) in millimetres. <u>130</u> mm |
| 17 | What is one-thousandth of 21 plus one-hundredth of 21 plus one-tenth of 21? 2.331 |
| 18 | True or false? One thousand lots of 0.013kg is 13kg. True 🖌 False |
| | |
| Cha | llenge |
| 19 | Mark the answer to 145 divided by 1000 on the line. |
| 20 | A warehouse has 1000 of one of these tins of paint. If the total amount of paint in the 1000 tins is 210 litres, tick the tin the warehouse has. |
| 21 | True or false? Dividing by 1000 gives the same answer as multiplying by $\frac{1}{1000}$. |
| | True 🖌 False |
| 22 | What is 70.5 × $\frac{1}{100}$ as a decimal? <u>0.705</u> |
| 23 | The arrow is pointing to the answer to the question ? ÷ 1000. What is the missing number in the question? 2.3 |
| | 2330 |
| 24 | A hose lets out 0.66 litres of water every second. Lucy wants to fill her 66-litre pond. How many seconds will it take to fill it? <u>100</u> sec |
| 25 | A box containing 1000 staples weighs 222 grams. The box when empty weighs 12 grams. How much does each staple weigh? <u>0.21</u> g |
| 26 | Add the product of 10 and 4.2 to the product of 1000 and 0.42. <u>462</u> |
| 27 | Circle the two numbers where one number is 1000 times that of the other. |
| | $0.067 6.7 \frac{67}{1000} 670 \frac{67}{100}$ |
| 28 | Charlie chooses a number to divide by 1000. His answer as a mixed number is $8\frac{7}{100}$. |
| | a) What is his answer as a decimal? <u>8.07</u> b) What was his chosen number? <u>8070</u> |

Round decimals to a given number of decimal places

Key point

| н | т | 0 | t | h | th | tth |
|---|---|-----|---|---|----|-----|
| 4 | 2 | 5 . | 4 | 8 | 2 | 9 |

When rounding, look at the digit in the column to the right of the one you are rounding to. If rounding to the **nearest tenth** (to one decimal place), look at the **hundredths** digit. If rounding to the **nearest hundredth** (to two decimal places), look at the **thousandths** digit, and so on. If the digit is 5 or more, round up.

425.4829 rounded to the nearest whole number is 425.
425.4829 rounded to the nearest tenth (one decimal place) is 425.5.
425.4829 rounded to the nearest hundredth (two decimal places) is 425.48.
425.4829 rounded to the nearest thousandth (three decimal places) is 425.483.

Get started

| 1 | Mark the decimal 3.27 on this line. | 5 | True or false? 25.493 when rounded to the nearest whole number is 25. True 🖌 False |
|---|---|---|---|
| 2 | Does 3.27 round to 3.2 or 3.3, when rounding to the nearest tenth? <u>3.3</u> | 6 | Is the thousandths digit of the decimal 303.728 five or higher? Yes 🖌 No 🗌 |
| 3 | Circle the tenths digit in this number. 2 5 $.49$ 3 | 7 | What is 303.728 rounded to the nearest hundredth (two decimal places)? <u>303.73</u> |
| 4 | Is the tenths digit of 25.493 five or higher? Yes 📃 No 🖌 | 8 | To how many decimal places has 6.4769 been rounded to give the answer 6.5? |

Now try these

| 9 | True or false? 57.7394 is 57.73 to two decimal places. True 📃 False 🖌 | | | | | | |
|----|--|---------|-----------------------------|-------------------------|-----------------------------|------------------------------|--|
| 10 | Fill in the missing numbers. | decimal | to the nearest whole number | to the nearest tenth | to the nearest hundredth | to the nearest thousandth | |
| | | 5.7493 | 6 | 5.7 | 5.75 | 5.749 | |
| 11 | A calculator shows the number 0.142857 on the display. Jamie writes this number to the nearest tenth (to one decimal place). What is his answer? | | | | | | |
| 12 | Fill in the missing numbers. | decimal | to the nearest whole number | to the nearest tenth | to the nearest | to the nearest thousandth | |

0.1

0.07

0.074

0

13 When dividing 2 by 3 the calculator shows 0.666666667 on the display. Write this number to two decimal places. 0.67

0.0736

| 14 | Find the sum of 53.741kg and 101.044kg. Give the answer to one decimal place. <u>154.8</u> kg |
|-----|--|
| 15 | Circle the two decimals that are 4.42 when rounded to two decimal places. |
| | 4.0425 4.428 4.4171 4.411 4.4239 |
| 16 | Answer these questions, giving your answers to two decimal places. |
| | a) 14.858 - 2.202 = 12.66 b) 47.3 ÷ 100 = 0.47 |
| 17 | When rounding to the nearest hundredth of a kilogram, what does 9.196kg round to?kg |
| 18 | What is the smallest decimal with two decimal places that is 12.8 when rounded to the nearest tenth? 12.75 |
| Cha | llenge |
| 19 | Find the total of the amounts in this receipt and give the answer to the nearest pound. f 16 f4.73 |
| 20 | A lottery winner wins £7.1057 million.£0.67a) Is this closer to £7.10 million or £7.11 million? £7.117.11million |
| | b) What is the winning amount to three decimal places? £ 7.106 million |
| 21 | What is the total amount in the three buckets to: |
| | a) one decimal place? 8.4 l |
| | b) two decimal places? 8.38 l |
| 22 | Round each of these masses to one-tenth of a kilogram and use your estimates to give an approximate total. |
| | 0.405kg + 0.371 kg + 0.285 kg + 0.051 kg = 1.2 kg |
| 23 | One mile is equal to 1609.344 metres. How many metres is 2 miles? |
| | Give your answer to the nearest metre. 3219 m |
| 24 | $363 \div 16 = 22.6875$ Use this fact to help you write the answer to £3630 ÷ 16 to two decimal places. £226.88 |
| 25 | The number of inches equal to half a metre is 19.685039370079 to 12 decimal places. Round this number to: a) one decimal place. <u>19.7</u> inches |
| | b) two decimal places. <u>19.69</u> inches c) five decimal places. <u>19.68504</u> inches |
| 26 | Use written division to convert $\frac{1}{3}$ to a decimal and give your answer to two decimal places. <u>0.33</u> |
| 27 | True or false? The fraction $\frac{1}{6}$ as a decimal is 0.166 when rounded to three decimal places. True False |
| 28 | Divide the numerator by the denominator for each of these fractions and give each answer as a decimal to three decimal places. |
| | a) $\frac{5}{6}$ <u>0.833</u> b) $\frac{7}{9}$ <u>0.778</u> c) $\frac{6}{11}$ <u>0.545</u> d) $\frac{2}{11}$ <u>0.182</u> |

Solve problems involving fractions and decimals

Schofield & Sims

Key point

There are several ways to find a fraction of a quantity.

 $\frac{5}{8}$ of 40 or $\frac{5}{8} \times 40$

Method 1: Divide by the denominator (to find one part) and multiply by the numerator (to find several parts). Divide by 8 to find $\frac{1}{8}$ and multiply by 5 to find $\frac{5}{8}$. $40 \div 8 \times 5 = 25$

Method 2: Use equivalent fractions.



Method 3: Multiply the numerator by the whole number and simplify.

Multiply 5 by 40 to get the fraction $\frac{200}{8}$, then **simplify** to get 25.

 $\frac{5}{8} \times 40 = \frac{200}{8} = \frac{100}{4} = \frac{25}{1} = 25$

If you need to multiply a decimal by a whole number, it can be easier to convert the decimal to a fraction first. You can then use one of the three methods above.

 $0.35 \times 160 = \frac{35}{100} \times 160 = \frac{7}{20} \times 160^8 = 7 \times 8 = 56$

In the same way, it can sometimes be easier to convert fractions to decimals before multiplying.

Get started



How many minutes are in $\frac{7}{12}$ of an hour? $\frac{7}{12} = \frac{?}{60} = 35$ min



Solve percentage problems including comparison

Key point

The percentage symbol, %, stands for per cent, which means out of every 100.

So 27% means 27 out of 100, $\frac{27}{100}$ or 27 hundredths.

Any fraction can be written as a percentage. If you can, multiply both the numerator and denominator by a number which will give the denominator 100.

$$\frac{1}{4} = \frac{25}{100} = 25\% \qquad \frac{17}{50} = \frac{34}{100} = 34\%$$

If the denominator of the fraction is not a factor of 100, for example $\frac{3}{8}$, divide the numerator by the denominator to find the decimal. Then multiply it by 100 to give the percentage.

$$3 \div 8 = 0.375$$
 $0.375 \times 100 = 37.5$ so $\frac{5}{9} = 37.5\%$

Get started

| 1 | True or false? 57% means $\frac{57}{100}$. True \checkmark False | 6 | Circle the percentage of this grid that is gold. |
|---|---|---|---|
| 2 | Write 81% as a fraction with the denominator 100. | 7 | Write 40% as a fraction with the denominator 100 and then in its simplest form. |
| 3 | What percentage is equal to $\frac{9}{100}$? 9% Given that one-half is $\frac{50}{100}$, what is one-half as a percentage? | | $40\% = \boxed{\frac{40}{100}} = \boxed{\frac{2}{5}}$ |
| | <u>50</u> % | 8 | Colour 40% of this shape. |
| 5 | Fill in the missing numbers. $\frac{7}{10} = \boxed{\frac{70}{100}} = \boxed{70\%}$ | | |



| 15 | Rashid scored 11 out of 20 in a test | . What is his score as a | a percentage? <u>55</u> | % |
|-----|--|-----------------------------------|-------------------------------|---------------------------|
| 16 | Write $\frac{7}{25}$ as: a) a fraction with hu | indredths. <u>28</u> 100 | b) a percentage | 28% |
| 17 | Maryam scored 7 out of 10 in a test | t and Adam scored 69 | out of 100. | |
| | Who has the better percentage? _ | Maryam | | |
| 18 | In a music exam, Daniel scored 17 c | out of 25. | | |
| | What is his score as a percentage? | _68%_ | 2 | |
| | | 4 | J | |
| Cha | llenge | | | |
| 19 | Put these in ascending order. | | | |
| | $\frac{3}{10}$ 4% $\frac{2}{5}$ 35% | 3 10 | 35% $\frac{2}{5}$ | |
| | A vase holds 20% of one litre. What | at percentage of a litr | $\frac{1}{1}$ of the vare | hold2 5% |
| 20 | | it percentage of a nut | 4 | |
| 21 | There are 100 children in a school a | and 55% of them are | girls. What fraction o 9 | f the children in the |
| | school are boys? Give the answer in | n its simplest form. | 20 | |
| 22 | As a percentage of a whole, by how | w much greater is $\frac{24}{25}$ | than <u>19</u> ? | |
| 23 | This table shows the number of | correctly answered | number of | percentage |
| | several tests. Write each score | | questions in total | score |
| | as a percentage. | 7 | 5 | 60% |
| | | 4 | 25 | 16% |
| | | 130 | 200 | 65% |
| 24 | In an athletics stadium 2480 of the | 4000 people are male | e. What percentage o | f the people there are: |
| | a) male? <u>62%</u> b) female | ? 38% | | |
| 25 | There are 20 questions in a quiz. Li | gets 17 correct. Mia g | $\frac{4}{2}$ of the total nu | mber of questions correct |
| 25 | and Ben scores 75%. a) Who scor | res the most? Li | b) Who scores th | ne least? Ben |
| | c) How many more questions does | Li get correct than Be | en? 2 | |
| 26 | Divide 5 by 8 to help you give $\frac{5}{8}$ as | : a) a decimal. <u>0.6</u> | 625 b) a percenta | ge. <u>62.5%</u> |
| 27 | Write $\frac{1}{2}$ as: a) a decimal to three of | decimal places. 0.33 | 33 | |
| 21) | b) a percentage to one | e decimal place. 33 | .3% | |
| | Write whether each statement is tr | ue or false | | |
| 28 | a) $\frac{8}{3}$ is approximately 2004 (to the | nearest whole number | r) true | |
| | a) $\frac{1}{9}$ is approximately 69% (to the | | | |
| | b) $\frac{-}{3}$ is approximately 60% (to the | nearest whole numbe | er). <u>talse</u> | |
| | c) $\frac{5}{6}$ is approximately 83% (to the | nearest whole numbe | er). <u>true</u> | |

Convert between fractions, decimals and percentages

Key point

Proportions of a whole can be described as fractions, as decimals and as percentages. Sometimes it is easier to work with fractions while at other times it is easier to work with percentages or decimals.



Get started

| 1 | Use the fact that 25% is one-quarter to help | 6 | Write 0.6 as a fi | raction and as a | a percentage. |
|---|---|---|-------------------------|------------------|------------------------|
| | you find 25% of 400ml. <u>100</u> ml | | $0.6 = \frac{6}{10} = $ | 60 % Als | o accept $\frac{3}{5}$ |
| 2 | How many lots of 0.1m are in one | | 10 | | |
| | whole metre? 10 | 7 | Complete the ta | able. | |
| 3 | Jacob scored 7 out of 10 in a test. | | fraction | percentage | decimal |
| | What is this score as a percentage? 70% | | <u>83</u> 100 | 83% | 0.83 |
| 4 | What percentage of a whole turn are three right angles? | | <u>20</u> 100 | 20% | 0.20 or 0.2 |
| | % | 8 | What fraction o | of a PA | STA PASTA |
| 5 | What is one-fifth | | kilogram is the | total | Rosen C |
| | as a percentage? <u>20</u> % | | mass of these the | wo bags? | |
| | | | <u>2</u> kg | 0.3 | 5kg 0.15kg |

| 9 | Fill in the boxes to find the missing percentage. $\frac{22}{25} = \frac{88}{100} = \frac{88}{100}$ |
|----|---|
| 10 | What is the score $\frac{41}{50}$ as a percentage? <u>82%</u> |
| 11 | Write what £150 is as a proportion of £200 as a percentage |
| 12 | Six minutes is equal to one-tenth of an hour. What percentage of an hour is 48 minutes? 80% |

| 13 | Simplify $\frac{8}{100}$ to help yo | u give 8% as a fraction in its s | simplest form. $\frac{2}{25}$ | - |
|-----|--|---|---|--|
| 14 | Write 5cm of 1m as: a) | a fraction in its simplest form | n. <u>20</u> b) a decir | nal. <u>0.05</u> |
| 15 | How long is a line that | is 20% of the length of line A | .? <u>16 </u> mm — | Line A |
| 16 | Adele scored 243 out o | f 300 in an exam. Write this a | s a fraction with the den | 80mm ominator of 100 and then |
| | as a percentage. a) fra | ction <u>81</u> b) percenta | age <u>81%</u> | |
| 17 | Sadiq has £175 and has | to pay 32% of it in tax. Fill in | the gaps to find how m | uch tax he has to pay. |
| | 32% of £175 = $\frac{32}{100}$ × | $f175 = \boxed{\frac{8}{25}} \times f175 = f$ | 56 | |
| 18 | Find the difference in k | ilograms between 2% of 3200 | $\frac{3}{100}$ of 2100kg. | kg |
| Cha | llongo | | | |
| Cha | llienge | | 1 | |
| 19 | Complete the table. | fraction in its simplest form | percentage | decimal |
| | | 20 | 65% | 0.65 |
| | | $\frac{2}{25}$ | 8% | 0.08 |
| 20 | A can of cola holds 0.33 | litres and a bottle of cola ho | lds 58% of a litre. Find t | he difference between |
| | the amount in each and | write the answer as a fractic | on of a litre in its simples | t form. <u>4</u> l |
| 21 | As he walks, each of Ry how far from the start | an's steps is 0.75m apart. If he has he walked? Give your ans | e takes 5 steps, swer as: | 0.75m |
| | a) a decimal. <u>3.75</u> | _m b) a mixed number in | its simplest form. 3 | <u>2</u> 4 m |
| 22 | A phone that cost £75 i By what percentage of | s reduced by £15 in a sale. the original price is it reduced | d? <u>20%</u> | |
| 23 | Find the total mass of t | hese two tins and write the an arram. 85% b) fraction | nswer as a: 0.45kg | 0.4kg $\frac{17}{20}$ kg |
| 24 | Juanita has £56. She ge | ts 8% in interest. How much i | nterest does she get? f | 4.48 |
| | Ruby takes out 20% of | the money in her savings acco | bunt. She takes out $f34$ | |
| 25 | a) How much money de | pes she have in total? £ <u>17</u> 0 | 0 | |
| | b) How much is left in t | the savings account now? $f_{}$ | 136 | Я |
| 26 | A nurse is giving some i If the adult's dose is 0.2 | medicine to a child. The child' litre, what is the child's dose | s dose is 60% of the adu in millilitres? <u>120</u> | It's dose. ml |
| 27 | There are 25 questions correct and Ella scores 6 b) How many more que | in a test. Noah gets 16 correct 58%. a) How many per cent r estions does Ella get correct th | t, Dylan gets 0.6 of the to nore than Noah does Ell nan Dylan?2 | otal number of questions a score? <u>4%</u> |
| 28 | Two-thirds of a litre of g | uice is put into a bottle that l percentage of 2 litres, to the n | holds 2 litres. How full is earest whole number | the bottle? 33% |

ANSWERS TEST

Check-up test 2

| 1 | Write <u>6</u> as a decimal. <u>0.006</u> | 1 mark |
|----|--|--------|
| 2 | Multiply 0.07 by 3 | 1 mark |
| 3 | How much less than £3 is £0.90 × 3? <u>30</u> p | 1 mark |
| 4 | A boat travels at 0.9 km per hour. If it stays at the same speed, how far will it travel in 24 hours? 21.6 km | 1 mark |
| 5 | A square has sides of 0.6m. What is: a) its perimeter? <u>2.4</u> m b) its area? <u>0.36</u> m ² | 1 mark |
| 6 | What number when divided by 100 gives 0.09? 9 | 1 mark |
| 7 | Ten people must equally pay for something costing £231. How much should they each pay? £ <u>23.10</u> | 1 mark |
| 8 | Josh chooses a number to divide by 1000. His answer as a mixed number is $4\frac{3}{100}$. | |
| | a) What is his answer as a decimal? <u>4.03</u> | |
| | b) What was his chosen number? <u>4030</u> | 1 mark |
| 9 | Does 4.73 round to 4.7 or 4.8 when rounding to the nearest tenth? <u>4.7</u> | 1 mark |
| 10 | A calculator shows the number 0.32582 on its display. Luca writes this number to the nearest tenth (to one decimal place). | |
| | What is his answer? | 1 mark |
| 11 | When rounding to the nearest hundredth of a kilogram, what does 6.496kg round to? <u>6.50</u> kg | 1 mark |
| 12 | One mile is equal to 1609.344 metres. How many metres is 3 miles? Give your answer to the nearest metre. 4828 m | 1 mark |



Solve problems involving calculating percentages

Key point Use fractions to help you find percentages of numbers and quantities. $1\% = \frac{1}{100}$ so to find 1% divide by 100. 1% of £800 = £800 ÷ 100 = £8 $25\% = \frac{25}{100} = \frac{1}{4}$ so to find 25% divide by 4. 25% of £800 = £800 ÷ 4 = £200 Use the percentages you know to work out more difficult percentages using r

Use the percentages you know to work out more difficult percentages using multiplication, addition or subtraction.

3% of £800 = $1\% \times 3 = £8 \times 3 = £24$

```
26\% of f800 = 25\% + 1\% = f200 + f8 = f208
```

Get started





| 15 | Find 5% of: a) 300ml. <u>15</u> ml b) 80cm. <u>4</u> cm | |
|-----|---|---|
| 16 | Amir draws a line that is 15% of the length of line A. | Line A |
| | How long is Amir's line? <u>9</u> mm | 60mm |
| 17 | True or false? 50% of a number is ten times as large as 5% of the s | ame number. True 🖌 False 🗌 |
| 18 | Find 50% of 140 and 5% of 140 and use your answers to find 45% | of 140. <u>63</u> |
| | | |
| Cha | allenge | |
| 19 | When drawing a pie chart Gemma colours 55% of the chart in gold What angle does she use for this section? <u>198</u> ° | d. |
| 20 | 86% = 50% + 25% + 10% + 1% Use this fact to help you find 8 | 6% of 3200. 2752 |
| 21 | 15% of £2600 11% of £3400 55% of £700 | |
| | What is the value of: a) the largest of the above amounts? £ <u>3</u> | <u>90 </u> |
| | b) the smallest of the amounts? £ 374 c) the total of the a | mounts? £ <u>1149</u> |
| 22 | How many minutes is 80% of one hour? <u>48</u> min | |
| 23 | True or false? 47% of one hour is 28 minutes and 12 seconds. T | rue 🖌 False |
| 24 | A piece of metal is 120cm in length. A machine in a factory makes | a hole 61% of the way along its |
| | length. How far from the furthest end is the hole, in centimetres (1 | to one decimal place)? <u>73.2</u> cm |
| 25 | The width of a rectangle is 80mm. Its length is 20% greater than it | s width. |
| | Find the perimeter of the rectangle in centimetres. <u>35.2</u> cm | 80mm |
| 26 | Emily draws a line that is 110% of the length of line B. | Line B |
| 20 | How long is Emily's line? <u>55</u> mm | 50mm |
| 27 | A doctor is giving some medicine to a child. The child's dose is 72% | o of the adult's dose. |
| | If the adult's dose is 110ml, what is the child's dose?ML | |
| 28 | Kofi earns £32000 per year. He pays 21% of the money in tax and the work manage does be have after paying these 2.6.23680 | 5% into his pension. |
| | How much money does ne have after paying those? I 20000 | |

Understand ratio and use a:b notation

Key point

A fraction compares a part with the whole.



Ratio compares parts of the whole with each other.

| 2 | \square | 5 | |
|---|-----------|---|--|
| | | | |

2 questions correct and 5 questions wrong is the ratio 2:5.

Ratio is used to describe **relationships between parts**, for example, 'for every 2 questions correct, there are 5 wrong' or 'for every 3 girls in the room there are 4 boys'. These are written as 2:5 and 3:4.

| Get | started | | |
|---------------|---|---|--|
| 2 | Given that $\frac{2}{5}$ of this shape is gold, what is the ratio of gold parts to white parts? gold : white 2 : 3 On this necklace $\frac{5}{8}$ of the beads are gold. What is the ratio of gold to white beads? gold : white 5:3 If 1 out of 5 of the children in a room are girls, what is the ratio of girls to boys? girls : boys 1 : 4 | 4 5 6 7 8 | Write the ratio of gold stars to white stars. 2:5 $\land \land \land$ |
| Nov | v try these | | |
| 9 10 11 | Colour this grid so that the ratio of coloured to wh True or false? If one-quarter of these bottles are fu the ratio of full bottles to empty bottles is 1:4. Tru For every gold section of this pattern there are two Circle which shows the ratio of gold to white section 1:3 2:1 1:2 | ite squ II and ¹ ue white ons. | the rest are empty, False \checkmark |
| 12 | A wall has blue and green tiles. For every 4 blue tile Write this as a ratio. | es ther | e is 1 green tile. blue : green 4 : 1 |

| 13 | An ice cream shop sells 3 scoops of vanilla ice cream for every scoop of caramel ice cream. Write this as a ratio of vanilla to caramel scoops. <u>3:1</u> |
|-----|---|
| 14 | A shop has a 'buy two, get one free' offer. Write the ratio of paid for items to free items2.1 |
| 15 | A class of children get into seven equal groups. Three of the groups are all girls. The rest of the groups are all boys. What is the ratio of girls to boys? <u>3:4</u> |
| 16 | Half the people in a room are adults and half are children. Write the ratio of adults to children |
| 17 | There are ten fish in a fish tank. Three are angel fish and seven are guppies. a) What is the ratio of angel fish to guppies? 3:7 b) What fraction of the fish are angel fish? 10 |
| 18 | The ratio of pens to pencils in a pencil case is 5:6. What fraction of the items are: a) pens? 11 b) pencils? 11 |
| Cha | allenge |
| 19 | One-third of a team's matches were won. The rest were lost. What was their 'win : lose' ratio? 1:2 |
| 20 | In a hockey match 7 out of the 12 shots at the goal were on target. |
| | What was the ratio of shots on target to shots not on target?7:5 |
| 21 | The instructions for a drink say to use squash to water in the ratio 1:6. What fraction of the mixed drink is water? $\frac{6}{7}$ |
| 22 | A factory makes different coloured sweets. $\frac{1}{8}$ of the sweets are blue. For every 2 blue sweets there are 3 red sweets. Write the ratio of: a) blue to not blue sweets. <u>1:7</u> b) red to blue sweets. <u>3:2</u> |
| 23 | For every £2 Ali saves his dad gives him £3 more. What fraction of the money altogether comes from his dad? $\frac{3}{5}$ |
| 24 | Circle the two fractions that could be used to describe the ratio 1:9. $\frac{3}{9}$ $(\frac{1}{10})$ $\frac{5}{9}$ $(\frac{9}{10})$ |
| 25 | Circle the two fractions that could be used to describe the ratio 4:5. $\frac{5}{8}$ $\frac{4}{5}$ $\left(\frac{5}{9}\right)$ $\left(\frac{4}{9}\right)$ $\frac{5}{4}$ |
| 26 | If 30% of a group of children are girls, what is the ratio of girls to boys? <u>3:7</u> |
| 27 | In bowl A the ratio of green olives to black olives is 20:10. In bowl B the ratio is 2:1. For each bowl, |
| | write the fraction of black olives in its simplest form. a) bowl A $\frac{1}{3}$ b) bowl B $\frac{1}{3}$ |
| | |

Recognise numbers in the same ratio

Key point

Like equivalent fractions, **equivalent ratios** can be found by multiplying or dividing both numbers by the same number. In the same way that the fraction $\frac{5}{10}$ can be simplified to $\frac{1}{2}$ by dividing both the numerator and denominator by the common factor 5, both numbers in the ratio 5:10 can be divided by 5 to give the equivalent ratio 1:2. 5:10 is said to be **in the same ratio** as 1:2.



| 9 | Complete the sequence of ratios in the same ratio as 1:2. | | | |
|----|--|------------------------------|--|--|
| Ľ | 1:2, 2:4, 3:6, 4:8, 5:10, <u>6:12</u> , <u>7:14</u> | | 1:2 | |
| 10 | Colour this grid so that for every 1 white square there are | 2 squares coloured | d. | |
| 11 | The ratio of knives to forks is 1:1. How many knives are the | nere if there are 27 | forks? 27 | |
| 12 | In a football match 6 shots at the goal were on target and For every shot on target, how many were not on target? | d 18 were not. | on target : not on target 6 : 18 1 : 3 | |
| 13 | A shop has a 'buy two, get one free' offer. How many free items will you get if you buy 6 items? | buy : free 2 : 1 6 : 3 | | |

| 14 | In a box, 4 out of the 24 chocolates are milk chocolates.milk : not milkFor every milk chocolate, how many are not milk chocolate?4 : 201 : 5 |
|-----|--|
| 15 | Fill in the missing numbers to show a sequence of ratios in the same ratio (as 3:4). $3:4, 6:8, 9:12, 12:16, 15:20, 18:24, 21:28$ |
| 16 | In a factory the ratio of full bottles to empty bottles is 1:3. If there are 100 full bottles, how many empty bottles must there be? 300 |
| 17 | Which ratios are in the same ratio as 3:2? Circle four. 6:2 15:10 9:3 30:20 6:4 9:6 4:6 |
| 18 | A recipe says 'for every 3 tomatoes use 5 mushrooms'. Tick each statement that is true. I could use 10 tomatoes and 6 mushrooms. I could use 33 tomatoes and 55 mushrooms. I could use 33 tomatoes and 55 mushrooms. I could use 34 tomatoes and 55 mushrooms. I could use 35 mushrooms. I could use 36 tomatoes and 55 mushrooms. I could use 36 tomatoes and 56 tomato |
| Cha | llenge |
| 19 | Write the next three ratios in this sequence. 5:3, 10:6, 15:9, 20:12, 25:15, 30:18, 35:21 |
| 20 | A wall has plain and patterned tiles. For every 4 plain tiles there is 1 patterned tile. If there are 20 plain tiles, how many must be patterned? 5 |
| 21 | Which ratios are in the same ratio as 2:5? 10:15 25:10 14:35 16:40 6:4 8:10 6:15 |
| 22 | A chef prepares 16 risottos and 20 lasagnes. Is the risotto to lasagne ratio 4:5? Yes 🖌 No |
| 23 | Write the ratio 25:15 in its simplest form by dividing both numbers by their largest common factor. |
| 24 | To make a drink, the instructions say to use lemon squash to water in the ratio 1:6. How much water would you use for 50ml of squash? <u>300</u> ml |
| 25 | A cricket team won 24 matches and lost 30 matches in a season. |
| 26 | There are 27 girls and 36 boys in the school hall. For every 3 girls, how many boys are there?4 |
| 27 | A team's 'win : lose' ratio is 5:2. If the team has lost 18 games, how many has it won? |
| 28 | There are 32 green olives and 28 black olives in a bowl.What is the ratio of green to black olives in its simplest form?8:7 |

Solve ratio problems involving two quantities

Key point

Most ratio problems involve numbers in the same ratio. To keep the numbers in the same ratio, always multiply or divide both numbers by the same number. To find a missing number, look at what one number has been multiplied or divided by and do the same to the other number.



A company gave money to two workers in the ratio 2:3. The worker who got more was given £60. 11 How much was the other worker given? £ 40

2:7

In a factory the ratio of full bottles to empty bottles is 1:3. 12 If there are 1500 full bottles, how many empty bottles must there be? 4500

on target and 14 were not. For every 2 shots

on target, how many were not on target?

| 13 | The ratio of squash to water is 2:7. How much water would you use for 30ml of squash? <u>105</u> ml |
|-----|---|
| 14 | The length and width of a computer screen are in the ratio 7:5. |
| | If its length is 42cm, what is its width? <u>30</u> cm |
| 15 | A wall has both plain and patterned tiles. For every 7 plain tiles there are 4 patterned tiles. If there are 84 plain tiles, how many are patterned? 48 |
| 16 | To make pink paint you can mix 2 parts of red paint with 7 parts of white paint. a) How much white paint would you use with 220ml of red paint? <u>770</u> ml b) How much mixed paint would be made in total? <u>990</u> ml |
| 17 | The length of a photograph is 6cm and its width is 4cm. Soraya copies and enlarges the photograph so that its width is now 20cm. What is its new length? <u>30</u> cm |
| 18 | A team's 'win : lose' ratio is 4:3. If the team has lost 18 games so far, how many has it won? 24 |
| Cha | llenge |
| 19 | Some cats and dogs are in a room. There are 9 pets altogether. How many cats and how many dogs are there, if there are twice as many cats as dogs? a) cats <u>6</u> b) dogs <u>3</u> |
| 20 | The distance from town A to town B is 4 times as far as from town B to town C. It is 52km from town A to town B. a) What is the distance from town B to town C? 13 km b) What is the total distance from town A to town C? 65 km |
| 21 | There are 42 girls and 48 boys in the school gym. How many boys are there for every 7 girls?8 |
| 22 | For a school trip the ratio of adults to children must be 2:9. How many adults are needed to take 36 children on a trip?8 |
| 23 | Some trees are being planted. For every 7 pine trees there are 8 fir trees. a) How many fir trees are planted if 56 pine trees are planted? 64 b) How many pine trees are planted if 56 fir trees are planted? 49 |
| 24 | There are 6 nuts to every 5 raisins in a bag. How many nuts are there if there are 60 raisins? |
| 25 | The ratio of breadcrumbs to flour in a recipe is 3:4. |
| | How many grams of breadcrumbs should you use for 420g flour? <u>315</u> g |
| 26 | There are 72 children and 48 adults. How many children are there for every 2 adults? 3 |
| 27 | On a slope of 1:5, you travel 5 metres horizontally for every metre the road rises. How much does the road rise for a horizontal distance of 45m? 9 m 45m |
| 28 | On a slope of 1:5, what is the horizontal distance for a rise of 25m? 125 m |

Schofield & Sims

Solve ratio problems involving similar shapes

Key point

Two shapes are **similar** if they have the **same angles** as each other and their **sides are in the same ratio**. One similar shape is an **enlargement** of the other.

5cm 3cm 15cm 4cm 12cr



The sides of the second shape are 3 times the lengths of the sides of the first shape. The shape has been enlarged by the scale factor 3.

Get started



| 9 | True or false? When a shape is photocopied and enlarged, it produces a similar shape. The has the same angles, but its sides are longer. True 🖌 False | e new s | hape |
|----|---|---------|------|
| 10 | This rectangle is enlarged by a scale factor of 7. Write the length and width of the | 11 | cm |
| | enlarged shape. a) length 77 cm b) width 42 cm 6cm | | |
| 11 | A triangle has sides of 3cm, 4cm and 5cm. It is enlarged by a scale factor of 5. | | |
| | Circle the length of the longest side of the enlarged triangle. | | |
| | 1cm 15cm 10cm 25cm 20cm | | |
| 12 | The perimeter of a triangle with sides of 3cm, 4cm and 5cm is 12cm. What is the perimeter of a similar triangle made by enlarging it by a scale factor of 5? | 60 | cm |

| 13 | The length to width measurements of a rectangle are in the ratio 7:2. |
|-----|--|
| | If its length is 14cm, what is its width? 4 cm 39cm 15cm 15cm |
| 14 | These triangles are similar. Find length A. <u>36</u> cm 12cm A |
| 15 | Two similar rectangles both have a 'length to width' ratio of 5:3. One has sides of 5cm and 3cm. |
| | The other rectangle has a length of 15cm. What is its width?9cm |
| 16 | A square with sides of 3cm is enlarged by a scale factor of 4. What is the perimeter of the enlarged square: a) in centimetres? <u>48</u> cm b) in millimetres? <u>480</u> mm |
| 17 | True or false? A rectangle with sides of 5cm and 2cm has an area of 10cm ² . When enlarged by the scale factor 2 the area of the new shape will be 20cm ² . ?cm True False 2cm ?cm |
| 18 | A photo is 7cm long and 4cm wide. When copied and enlarged it is 20cm wide. |
| | What is its new length? <u>35</u> cm |
| | |
| Cha | llenge 20cm |
| 19 | These shapes are similar. Find lengths A and B. $A = \underline{8} \text{ cm} B = \underline{5} \text{ cm} 4 \text{ cm} \overline{3} \text{ cm}$ 12cm |
| 20 | On a slope of 1:5, you travel 5 metres horizontally |
| | for every metre the road rises. How much does the road rise for a horizontal distance of 65m? 13 m 5m 65m |
| 21 | Two similar rectangles have a 'length to width' ratio of 3:2. Tick the two lengths and widths that could be these rectangles. |
| | l = 6cm, w = 2cm 🚺 l = 12cm, w = 8cm 🖌 l = 21cm, w = 14cm 🖌 l = 15cm, w = 12cm |
| 22 | An 8cm line is enlarged by a scale factor of $1\frac{1}{2}$. What is the length of the enlarged line? <u>12</u> cm |
| 23 | True or false? When the sides of a shape are multiplied by the scale factor $\frac{1}{2}$ the resulting shape is |
| | smaller than the original. True 🖌 False |
| 24 | Are these shapes similar or not similar? not similar 3cm |
| 25 | True or false? All squares are similar. They all have four right angles and every square is an |
| | enlargement or reduction of another square. True 🖌 False |
| 26 | A square with an area of 16cm ² is enlarged by the scale factor 2. Write: a) the length of the enlarged shape. <u>8</u> cm b) its area. <u>64</u> cm ² |
| 27 | A square photo with an area of 25 cm ² is enlarged by the scale factor 2. How many times the area of the original photo is the area of the enlarged photo? 4 |
| | Three similar triangles have sides that are in the ratio of 1.2.3. The sides of the largest triangle are 5 |
| 28 | times those of the smallest triangle. The smallest triangle is enlarged by a scale factor of 2 to make the middle triangle. The longest side of the middle triangle is 12cm. |

What is: a) the longest side of the largest triangle? <u>30</u> cm b) its perimeter? <u>60</u> cm

Solve problems involving unequal sharing and grouping

Key point

When dividing amounts into a given ratio, it can help to know how many parts there are altogether in the ratio. For example, a ratio of **4:1** has **5** parts and a ratio of **2:7** has **9** parts. Divide the amount by the total number of parts to find out what one part is worth. Multiply one part to find what several parts are worth.

Divide £55 in the ratio 4:1.

4:1 → 5 parts £44:£11 = £55 First divide ± 55 by $5 = \pm 11$. Then multiply the ratio numbers by ± 11 . Check they add up to the right total.

Get started

| 2 | James has £15 in pound coins in 3 equal piles. How many coins are in each pile? 5 For every £1 James gives his son, he gives £2 to his daughter. How much do his son and daughter get if he shares £15 in this way? | 5 | For every £3 Sam gives her son, she gives £2 to her daughter. She sorts £50 into five piles to help her. How much do her son and daughter each get? a) son £ 30 b) daughter £ 20 |
|---|---|---|---|
| | a) son £ <u>5</u> b) daughter £ <u>10</u> | 6 | How much do they each get if Sam shares £20 in the same way? |
| 3 | Hannah has 16 cherries in four equal piles. How many cherries are in each pile? <u>4</u> | 7 | a) son £ 12 b) daughter £ 8 True or false? Freddie gives £700 to two |
| 4 | Hannah shares the 16 cherries. For every 1 she eats herself she gives 3 to her friend. | | workers in the ratio of 3:4. One gets £300 and the other gets £400. True 🖌 False |
| | a) How many does Hannah eat? <u>4</u> b) How many does her friend get? <u>12</u> | 8 | 30 children in a room get into groups. Each group has 5 girls and 1 boy. How many girls are there altogether?25 |

| 9 | The ratio of nuts to | raisins in a bag | is 4:3. What is the | total number of _l | parts in the ratio? | |
|----|---------------------------|--------------------------------------|--------------------------------|------------------------------|----------------------|--------|
| | 4:3 \rightarrow ? parts | 7 | | | | |
| 10 | If the ratio of nuts t | to raisins in a ba | g is 4:3 and there a | re 70 altogether, | how many of each are | there? |
| | a) nuts <u>40</u> | b) raisins 30 | 0 | | | |
| 11 | In a zoo there are 2 | lions to every 3 | tigers. If there are | 25 of these | lions : tigers | |
| | Fill in the boxes to h | w many lions an help you find the | d how many tigers e answer. | are there? | 2:3 → 5 | parts |
| | a) lions <u>10</u> | b) tigers15 | 5 | | 10 :15 → 25 | |
| 12 | For every £3 Ezra sa | ives, he gives £5 | to charity. | | 3 : 5 | |
| | If he shares £80 in t | his way, how mu | uch does: | | | |
| | a) he save? £ 30 |) b) he g | jive to charity? £ | 50 | | |

| | In a hockey match there were 21 shots at the goal. The ratio of those on target to those not on target was 2:5. How many were: |
|--|--|
| | a) on target? 6 b) not on target? 15 |
| 14 | In a field there are sheep and dogs. There are 9 sheep for every dog. How many sheep and how many dogs are there if there are 40 animals in the field? |
| | a) sheep <u>36</u> b) dogs <u>4</u> |
| 15 | A company gave money to two workers in the ratio 2:3. The total amount given was £45. How much did each worker get? a) f <u>18</u> b) f <u>27</u> |
| 16 | A drink has been made using orange and lemon in the ratio of 2:7. If the total amount of drink is 180 ml, how much: a) orange was used? <u>40</u> ml b) lemon was used? <u>140</u> ml |
| 17 | A football team's 'win : lose' ratio is 5:3. If the team has played 48 games and not drawn any of them, how many has it: a) won? b) lost?8 |
| 18 | Divide £72 in the ratio of 5:3. £45:£27 |
| Cha | llenge |
| 19 | A line that is 35cm in length is divided in the ratio 6:1. |
| | What is the length of the longer part? <u>30</u> cm |
| 20 | The ratio of apples to pears in a crate is 2:9. If there are no other fruits in the crate and there are 66 pieces of fruit, how many pears are there? <u>54</u> |
| | |
| 21 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km |
| 21 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km Share 108g in the ratio 2:1. 72 g: 36 g |
| 21 22 23 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km 60km Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> |
| 21 22 23 24 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km <u>60km</u> Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> To make a new forest, 900 trees are planted. For every 7 oak trees there are 8 birch trees. |
| 21 22 23 24 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km 60km Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> To make a new forest, 900 trees are planted. For every 7 oak trees there are 8 birch trees. a) How many oak trees are planted? <u>420</u> b) How many birch trees are planted? <u>480</u> |
| 21 22 23 24 25 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> To make a new forest, 900 trees are planted. For every 7 oak trees there are 8 birch trees. a) How many oak trees are planted? <u>420</u> b) How many birch trees are planted? <u>480</u> There are 360° in a full turn. Divide a full turn into two angles in the ratio of 8:1. <u>320°: 40°</u> |
| 21 22 23 24 25 26 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> To make a new forest, 900 trees are planted. For every 7 oak trees there are 8 birch trees. a) How many oak trees are planted? <u>420</u> b) How many birch trees are planted? <u>480</u> There are 360° in a full turn. Divide a full turn into two angles in the ratio of 8:1. <u>320°: 40°</u> If a right-angle is divided in the ratio 3:2, what is the size of the smaller angle? <u>36</u> ° |
| 21 22 23 24 25 26 27 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> To make a new forest, 900 trees are planted. For every 7 oak trees there are 8 birch trees. a) How many oak trees are planted? <u>420</u> b) How many birch trees are planted? <u>480</u> There are 360° in a full turn. Divide a full turn into two angles in the ratio of 8:1. <u>320°: 40°</u> If a right-angle is divided in the ratio 3:2, what is the size of the smaller angle? <u>36</u> ° Divide £300 in the ratio 1:2:3. <u>£ 50 : £ 100 : £ 150</u> |
| 21 22 23 24 25 26 27 28 | It is 60km from town A to town C, passing through town B on the way. If the distance from A to B is four times as far as from B to C, what is the distance from A to B? <u>48</u> km Share 108g in the ratio 2:1. 72 g: 36 g For a school trip the ratio of adults to children is 2:5. If 84 people go on a trip, how many of them are children? <u>60</u> To make a new forest, 900 trees are planted. For every 7 oak trees there are 8 birch trees. a) How many oak trees are planted? <u>420</u> b) How many birch trees are planted? <u>480</u> There are 360° in a full turn. Divide a full turn into two angles in the ratio of 8:1. <u>320°: 40°</u> If a right-angle is divided in the ratio 3:2, what is the size of the smaller angle? <u>36</u> ° Divide £300 in the ratio 1:2:3. <u>£ 50 : £ 100 : £ 150</u> A field with an area of 20000m ² is split into three areas in the ratio of 4:3:3. |

Schofield & Sims

Check-up test 3

| 1 | What is 10% of 360ml? <u>36</u> ml 360 ml | 1 mark |
|----|---|------------|
| 2 | What is one per cent of three thousand? Write the answer in words. <u>thirty</u> | 1 mark |
| 3 | True or false? 9% of £500 is £45. True 🖌 False | 1 mark |
| 4 | How many minutes is 60% of one hour? <u>36</u> min | 1 mark |
| 5 | Given that $\frac{3}{5}$ of this shape is gold, what is the ratio of gold parts to white parts? | |
| | gold : white 3 : 2 | 1 mark |
| 6 | A scarf has orange and blue squares. For every 5 orange squares there is 1 blue square. Write this as a ratio. | |
| | orange : blue 5 : 1 | 1 mark |
| 7 | A rugby team wins one-quarter of its matches. It loses the rest. What is their 'win : lose' ratio? <u>1:3</u> | 1 mark |
| 8 | If 10% of a group of children are girls, what is the ratio of girls to boys? <u>1:9</u> | 1 mark |
| 9 | True or false? 4:8 is in the same ratio as 1:2. True 🖌 False | 1 mark |
| 10 | Colour this grid so that for every 1 white square 3 squares are coloured. | 1 mark |
| 11 | In a box, 6 out of the 24 biscuits are chocolate. For every chocolate biscuit, how many are not chocolate? | |
| | chocolate : not chocolate 6 : 18 1 : 3 | 1 mark |
| 12 | There are 28 geese and 21 ducks on the river.For every 4 geese, how many ducks are there?3 | 1 mark |
| 13 | The ratio of jelly beans to fruit chews in a dish is 5:3. If there are 20 jelly beans, how many fruit chews are there? <u>12</u> | 1 mark |

| 14 Two employees are paid in the ratio 3:4. The employee who gets more is given £48. | |
|--|--------|
| How much is the other employee given? f_{36} | 1 mark |
| | |
| 15 The length and width of a television are in the ratio 6:4. | |
| If its length is 36cm, what is its width? <u>24</u> cm | 1 mark |
| There are 4 puts to every 7 raisins in a bag | _ |
| 16 There are 4 huts to every 7 raisins in a bag. | |
| How many nuts are there if there are 77 raisins? 44 | 1 mark |
| A photo is enlarged by the scale factor 4. | |
| What is the photo's new length? 20 cm | 1 mark |
| | THAIK |
| | |
| The perimeter of a triangle with sides of 4cm, 5cm and 6cm is 15cm. What is the | |
| perimeter of a similar triangle that is enlarged by a scale factor of 4? | |
| <u> 60 </u> cm | 1 mark |
| | |
| 19 Two similar rectangles both have a 'length to width' ratio of 7:4. One has sides of 7c | :m |
| What is its width? 12 cm | |
| | 1 mark |
| 20 True or false? All rectangles are similar. They all have four right angles and every | |
| rectangle is an enlargement or reduction of another rectangle. | |
| True False 🗸 | 1 mark |
| The ratio of oranges to lemons in a bag is 5:2 | |
| $\frac{21}{21}$ | |
| what is the total number of parts in the ratio? $5:2 \rightarrow ?$ parts | 1 mark |
| In a basketball match there were 28 shots at the basket. The ratio of those on targe | t |
| to those not on target was 4:3. | |
| How many were: a) on target? <u>16</u> b) not on target? <u>12</u> | 1 mark |
| | |
| for every gerbil. How many hamsters and how many gerbils are | |
| there if there are 48 animals in the shop? | |
| a) <u>42</u> hamsters b) <u>6</u> gerbils | 1 mark |
| | |
| Divide £600 in the ratio 3:2:1. | |
| £ 300 : £ 200 : £ 100 | 1 mark |
| | |
| | |
| | Total |
| | |

24 marks

Final test





| Section 9 | | | | |
|--|--------------------------------------|--|--|--|
| Write the answer to 745 ÷ 2 as a decimal. <u>372.5</u> Divide 77 by 4 and give your answer as a decimal. <u>19.25</u> 4 7 7 . 0 0 Use written division to find the answer to 575 ÷ 4 as a decimal. <u>143.75</u> | 1 mark 1 mark 1 mark 1 mark | | | |
| Section 10 | | | | |
| A calculator shows the number 0.172857 on its display. Irfan writes this number to the nearest tenth (to one decimal place). What is his answer? | 1 mark | | | |
| Round each of these masses to one-tenth of a kilogram. Then use your estimates to give | 1 mark | | | |
| an approximate total. 0.401 kg + 0.382 kg + 0.288 kg + 0.075 kg = 1.2 kg | 1 mark | | | |
| Section 11 | | | | |
| Matthew scores 69 out of 100 in a test. Khalid scores 71%. Who has the higher score? <u>Khalid</u> What is the score ⁴³/₅₀ as a percentage? <u>86</u>% | 1 mark | | | |
| A can of cola holds 0.34 litres and a bottle holds 59% of a litre. Find the difference between the amount of cola in each. Write the answer as a fraction of a litre in its simplest form. $\frac{1}{4}$ l | | | | |
| Section 12 | | | | |
| 34 Which ratio is in the same ratio as 3:1? Circle it. | 1 mark | | | |
| 35In a box, 4 out of the 20 chocolates are milk chocolates. For every milk chocolate, how many are not milk chocolate?milk : not milk 4 : 161 : 4 | 1 mark | | | |
| A wall has plain and patterned tiles. For every 4 plain tiles there is 1 patterned tile. If there are 100 plain tiles, how many patterned tiles will there be? 25 | 1 mark | | | |

| Section 13 | | | | | | | |
|------------------------|--|---|--------------------------------|------------------|----------|--|--|
| 27 | Eind 5% of 480km. 24 km | | | | | | |
| | | | | | | | |
| 38 | Zoe draws a line that is 15% of the length of line A. | | | | 1 | | |
| | How long is zoe's line? <u>9</u> mm 60mm | | | | | | |
| 39 | This table shows the number of questions correctly answered in several tests. Write each score as a percentage. | | | | | | |
| | correctly answered | number of questions in total | percentage score | | | | |
| | 7 | 10 | 70% | | | | |
| | 4 | 5 | 80% | | | | |
| | 8 | 25 | 32% | | | | |
| | 13 | 50 | 26% | | | | |
| | 150 | 200 | 75% | | 1 mark | | |
| | | | | | | | |
| Sect | ion 14 | | | ?cm | | | |
| 40 | Rectangle B is an enla multiplied by the sca length of rectangle B 15cm | argement of rectangl le factor 5. What is th ?? | e A ne 10cr 3cm 2cm A | n B | 1 mark | | |
| 41 | These triangles are si length of the unmark 15 cm | milar. What is the ked side? | 13cm 5cm 12cm | 39cm ?cm 36cm | 1 mark | | |
| 42 | Two similar rectangles both have a 'length to width' ratio of 7:3. One has sides of 7cm and 3cm. The other rectangle has a length of 21cm. What is its width?9cm | | | | | | |
| Section 15 | | | | | | | |
| 43 | Rakesh has £18. For every £1 he gives his son, he gives £2 to his daughter. How much do his son and daughter each get if he shares £18 in this way? a) son £ 6 b) daughter £ 12 | | | | | | |
| 44 45 | Two workers earn their wages in the ratio 3:2. The total amount given was £45. How much did each worker get? a) £ 27 b) £ 18 Share 108g in the ratio 7:5. 63 g: 45 g | | | | | | |
| | | End o | f test | | 45 marks | | |