



5.1F Writing a Ratio as a Fraction or Linear Function: Foundation Tier Practice

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 45 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1 Write the ratio 3:5 as a fraction in its simplest form.

(Total for Question 1 is 1 mark)

- 2 Convert the ratio 2:7 into a fraction.

(Total for Question 2 is 1 mark)

- 3 A recipe uses ingredients in the ratio 4:1 (flour : sugar). What fraction of the mixture is sugar?

(Total for Question 3 is 1 mark)

- 4 Write the ratio 6:9 as a fraction in simplest form.

(Total for Question 4 is 2 marks)

- 5 The ratio of boys to girls in a class is 5:8. What fraction of the class are girls?

(Total for Question 5 is 2 marks)

- 6** A paint mix uses red : white in the ratio 7:3. Work out the fraction of the mix that is red and give the answer as a percentage.

(Total for Question 6 is 3 marks)

- 7** Write the relationship between x and y as a linear function $y = kx$ when y is directly proportional to x with ratio 4:1 ($y:x = 4:1$). State the value of k .

(Total for Question 7 is 3 marks)

- 8** Priya mixes squash and water in the ratio 1:6 (squash : water). Let s be the amount of squash in litres and w the amount of water. Write w as a linear function of s in the form $w = ks$ and give k .

(Total for Question 8 is 4 marks)

- 9** Sam and Erin split money in the ratio 3:2. If Sam receives x pounds, write an expression for the total amount of money T in pounds in terms of x .

(Total for Question 9 is 4 marks)

- 10** A map scale shows that 1 cm represents 3 km. Express the distance d in kilometres as a linear function of the map length m in centimetres in the form $d = km$. Give k .

(Total for Question 10 is 5 marks)

- 11** A gardener uses compost and soil in the ratio 2:5. If the gardener uses x kg of compost, show that the total mixture M in kg can be written as $M = \frac{7}{2}x$, then simplify this expression to a single decimal.

(Total for Question 11 is 6 marks)

- 12** Oliwia buys pens and pencils in the ratio 4:3. She spends 21 pounds in total. How much does one part represent, and how much did she spend on pens? Write your answer as a fraction of the total spent and as a decimal for the amount on pens.

(Total for Question 12 is 4 marks)

Mark scheme · 5.1F Writing a Ratio as a Fraction or Linear Function: Foundation Tier Practice

Question 1

- **B1** $\frac{3}{5}$ cao
- **Answer:** $\frac{3}{5}$

Question 2

- **B1** $\frac{2}{7}$ cao
- **Answer:** $\frac{2}{7}$

Question 3

- **B1** $\frac{1}{5}$ cao
- **Answer:** $\frac{1}{5}$

Question 4

- **M1** shows dividing both terms by common factor 3 or equivalent method
- **A1** $\frac{2}{3}$ cao
- **Answer:** $\frac{2}{3}$

Question 5

- **M1** writes fraction as $\frac{8}{(5+8)}$ or equivalent
- **A1** $\frac{8}{13}$ cao
- **Answer:** $\frac{8}{13}$

Question 6

- **M1** writes fraction $\frac{7}{(7+3)}$ or $\frac{7}{10}$
- **A1** $\frac{7}{10}$ cao
- **A1** 70% cao
- **Answer:** $\frac{7}{10}$ and 70%

Question 7

- **M1** recognises $y/x = 4/1$ so $k = 4$ or writes $y = 4x$
- **A1** $y = 4x$ cao
- **B1** $k = 4$ stated explicitly
- **Answer:** $y = 4x$, $k = 4$

Question 8

- **M1** uses ratio $w/s = 6/1$ or writes $w = 6s$
- **A1** $w = 6s$ cao
- **B1** states $k = 6$
- **B1** units or variable consistent (litres) or equivalent statement
- **Answer:** $w = 6s$, $k = 6$

Question 9

- **M1** recognises Sam's share is 3 parts so one part = $x/3$ or writes Erin = $(2/3)x$
- **M1** adds shares to form total $T = x + (2/3)x$ or equivalent
- **A1** $T = (5/3)x$ cao
- **B1** alternatively $T = 5 * (x/3)$ and equivalent simplified form stated
- **Answer:** $T = (5/3)x$

Question 10

- **M1** identifies ratio $d:m = 3:1$ or $d = 3m$
- **M1** writes $d = 3m$ with units
- **A1** $d = 3m$ cao
- **B1** states $k = 3$
- **B1** units consistent: d in km when m in cm or equivalent
- **Answer: $d = 3m, k = 3$**

Question 11

- **M1** uses ratio compost:soil = 2:5 so total parts = 7 and one part = $x/2$ (since compost is 2 parts = x)
- **M1** writes total mixture as $M = 7 * (x/2)$ or equivalent
- **A1** shows $M = 7/2 x$ cao
- **B1** correct explanation that total parts = 7 so total = 7 times one part, and one part = $x/2$, so $M = 7 * x/2$ oe
- **M1** converts $7/2$ to a decimal: $7/2 = 3.5$
- **A1** simplifies to $M = 3.5x$ cao
- **Answer: $M = 7/2 x = 3.5x$**

Question 12

- **M1** uses total parts $4 + 3 = 7$ and finds one part = $21/7 = 3$
- **A1** one part = 3 pounds cao
- **M1** calculates pens cost = 4 parts = $4 * 3 = 12$
- **A1** pens cost 12 pounds and fraction $12/21 = 4/7$ cao, decimal 12.00 or 12.0
- **Answer: One part = 3 pounds; spent on pens = 12 pounds, which is $12/21 = 4/7$ of the total, amount 12.0 pounds**