3.6 Proportion: 1-hour Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Priya uses 300 g of sugar to make 24 cupcakes. Work out how much sugar she needs to make 10 cupcakes.

(Total for Question 1 is 2 marks)

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2 A paint covers 18 m² with 3 litres. How many litres are needed to cover 25 m²? Give your answer to 2 decimal places.

(Total for Question 2 is 2 marks)

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3 A recipe for 8 people uses 480 g of flour. Find the amount of flour needed for 5 people.

(Total for Question 3 is 2 marks)

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4 Amina and Yusuf share 12 biscuits in the ratio 2:1. Work out how many biscuits Amina gets and how many Yusuf gets.

(Total for Question 4 is 2 marks)

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5 Five pens cost £3.00. Work out the cost of one pen, then the cost of eight pens.

(Total for Question 5 is 2 marks)

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6 On a map the scale is 1 cm represents 5 km. The real-life distance between two towns is 14 km.
What is the distance between the two towns on the map, in centimetres?

(Total for Question 6 is 2 marks)

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7 Here are the ingredients for 10 people.
Tomatoes 375 g, onions 10 g.
Work out how much of each ingredient is needed to make the same curry for 16 people.

(Total for Question 7 is 3 marks)

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8 20 workers take 2 days to paint a fence. All the workers work at the same rate.
How many days would it take 5 workers to do the same job?

(Total for Question 8 is 3 marks)

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9 Here are the ingredients for 12 people.
Tomatoes 125 g, onions 40 g.
Work out how much of each ingredient is needed to make the same pasta sauce for 36 people.

(Total for Question 9 is 3 marks)

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10 20 workers take 5 days to dig a trench. All the workers work at the same rate.
How many days would it take 10 workers to do the same job?

(Total for Question 10 is 3 marks)

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11 Here are the ingredients for 6 people.
Tomatoes 100 g, onions 120 g.
Work out how much of each ingredient is needed to make the same soup for 9 people.

(Total for Question 11 is 3 marks)

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12 3 apples cost £2.61.
Work out the cost of 7 apples.

(Total for Question 12 is 2 marks)

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13 6 workers take 9 days to tile a floor. All the workers work at the same rate.
How many days would it take 18 workers to do the same job?

(Total for Question 13 is 3 marks)

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14 17 workers take 15 days to dig a trench. All the workers work at the same rate.
How many days would it take 3 workers to do the same job?

(Total for Question 14 is 3 marks)

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15 Which is better value: Pack A, 750 g cheese for £4.50, or Pack B, 500 g cheese for £3.20?
Show your working.

(Total for Question 15 is 2 marks)

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16 A cake recipe for 6 people uses 125 g butter. Work out the amount of butter needed to make the cake for 9 people.

(Total for Question 16 is 3 marks)

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17 A muffin recipe uses 150 g of flour to make 3 muffins. How much flour is needed to make 10 muffins?

(Total for Question 17 is 2 marks)

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18 Three friends share £36 in the ratio 3:2:1. Work out the smallest share.

(Total for Question 18 is 2 marks)

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19 A car travels 90 miles using 6 gallons of petrol.

(a) Work out how many miles the car travels per gallon. **(1)**

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(b) How many gallons are needed for 300 miles? Give answer to 1 decimal place. **(2)**

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(Total for Question 19 is 3 marks)

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Mark scheme · 3.6 Proportion: 1-hour Pack

Question 1

find sugar per cupcake: 300/24 oe	**M1**
125 g cao	**A1**

Answer: 125 g (300 g / 24 = 12.5 g per cupcake; 12.5 g x 10 = 125 g).

Question 2

use unit rate: 3/18 or litres per m^2 and multiply by 25 oe	**M1**
4.17 litres awrt	**A1**

Answer: 4.17 litres (litres per m^2 = 3 / 18 = 1/6; litres needed = 25 / 6 = 4.166666... => 4.17).

Question 3

find amount per person: 480/8 oe	**M1**
300 g cao	**A1**

Answer: 300 g (480 g / 8 = 60 g per person; 60 g x 5 = 300 g).

Question 4

Divide 12 into 2 + 1 = 3 equal parts, find one part 12/3 = 4 oe	**M1**
Amina 8 biscuits, Yusuf 4 biscuits cao	**A1**

Answer: Amina 8, Yusuf 4

Question 5

Find cost of 1 pen: 3.00 / 5 = 0.60 oe	**M1**
Cost of 8 pens = 8 x 0.60 = £4.80 cao	**A1**

Answer: £4.80

Question 6

Use scale: 1 cm = 5 km so cm = 14 / 5 oe	**M1**
Distance = 2.8 cm cao	**A1**

Answer: 2.8 cm

Question 7

multiplier 16/10 or amounts for one person	**M1**
tomatoes 600 g	**A1**
onions 16 g	**A1**

Answer: tomatoes 600 g and onions 16 g

Question 8

20 x 2 = 40 worker-days	**M1**
40 / 5	**M1**
8 days	**A1**

Answer: 8 days

Question 9

multiplier 36/12 or amounts for one person	**M1**
tomatoes 375 g	**A1**
onions 120 g	**A1**

Answer: tomatoes 375 g and onions 120 g

Question 10

20 x 5 = 100 worker-days	**M1**
100 / 10	**M1**
10 days	**A1**

Answer: 10 days

Question 11

multiplier 9/6 or amounts for one person	**M1**
tomatoes 150 g	**A1**
onions 180 g	**A1**

Answer: tomatoes 150 g and onions 180 g

Question 12

£2.61 / 3 = £0.87 for one	**M1**
£6.09	**A1**

Answer: £6.09

Question 13

6 x 9 = 54 worker-days	**M1**
54 / 18	**M1**
3 days	**A1**

Answer: 3 days

Question 14

17 x 15 = 255 worker-days	**M1**
255 / 3	**M1**
85 days	**A1**

Answer: 85 days

Question 15

calculate price per 100 g or per kg for both packs (e.g. 4.50/7.5 or 3.20/5)	**M1**
Pack A is better value: £0.60 per 100 g vs £0.64 per 100 g cao	**A1**

Answer: Pack A is better value. Pack A: £4.50/750 g = £0.60 per 100 g. Pack B: £3.20/500 g = £0.64 per 100 g.

Question 16

find butter per person: 125/6 oe	**M1**
multiply per person amount by 9 oe	**M1**
187.5 g cao	**A1**

Answer: 187.5 g (125/6 = 20.833... g per person; x 9 = 187.5 g).

Question 17

Find flour per muffin: 150/3 = 50 g oe	**M1**
For 10 muffins: 10 x 50 = 500 g cao	**A1**

Answer: 500 g

Question 18

Total parts 3+2+1 = 6, one part = 36/6 = 6 oe	**M1**
Smallest share = 1 part = £6 cao	**A1**

Answer: £6

Question 19

(a) 15 miles per gallon cao	**B1**

(a) Answer: 15 mpg

(b) Use mpg: gallons = 300 / 15 oe	**M1**
(b) gallons = 20.0 to 1 dp cao	**A1**

(b) Answer: 20.0 gallons

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