3.5 Direct Proportion and the Unitary Method: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Amir types 240 words in 10 minutes. At this rate, how long will it take him to type 1200 words?

(3)

2 Ria earns £217.50 for 29 hours of work. Work out her hourly rate of pay.

(2)

3 A shop sells cereal in two sizes. Pack A is 300 g for £2.47. Pack B is 800 g for £5.03. Which pack is better value? You must show your working.

(3)

4 One of a type of ticket costs £2.82. Work out the cost of 3 of them.

(1)

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5 Ria earns £360 for 45 hours of work. Work out her hourly rate of pay.

(2)

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6 One of a type of bottles of water costs £5.49. Work out the cost of 8 of them.

(1)

---

7 The table shows pairs of values of two quantities that are directly proportional.

x	**4**	**18**
y	32	?

Work out the missing value.

(2)

---

8 y is directly proportional to x. When x = 7, y = 49. Work out the value of y when x = 5.

(2)

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9 One of a type of notebook costs £1.28. Work out the cost of 9 of them.

(1)

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10 A recipe for 8 people uses 325 g of flour and 150 g of butter. Work out how much of each ingredient is needed for 16 people.

(3)

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11 A shop sells rice in two sizes. Pack A is 250 g for £2.23. Pack B is 500 g for £3.57. Which pack is better value? You must show your working.

(3)

---

12 Amir types 216 words in 9 minutes. At this rate, how long will it take him to type 1080 words?

(3)

---

13 A shop sells cereal in two sizes. Pack A is 300 g for £2.40. Pack B is 500 g for £1.25. Which pack is better value? You must show your working.

(3)

---

14 Ben is paid £11.55 per hour. He works 24 hours in a week. How much is he paid?

(2)

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15 The table shows pairs of values of two quantities that are directly proportional.

x	6	16
y	42	?

Work out the missing value.

(2)

---

16 A shop sells cereal in two sizes. Pack A is 750 g for £1.17. Pack B is 600 g for £2.90. Which pack is better value? You must show your working.

(3)

---

17 A recipe for 4 people uses 125 ml of milk and 75 g of rice. Work out how much of each ingredient is needed for 16 people.

(3)

---

18 £1 = 1.3 dollars. Convert £40 to dollars.

(2)

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19 A drinks company makes 24 bottles using 3 litres of juice concentrate. How much concentrate is needed for 10 bottles?

(a) Find the amount of concentrate for 1 bottle. **(1)**

.....

(b) Use your answer to find concentrate for 10 bottles. **(2)**

.....

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20 6 identical pens cost £3.60. Find the cost of 1 pen.

(1)

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21 5 identical calculators cost £22.50. Find the cost of 9 calculators.

(2)

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Mark scheme · 3.5 Direct Proportion and the Unitary Method: 1-hour Pack

Question 1

240 ÷ 10 = 24 words per minute	M1
1200 ÷ 24	M1
50 minutes cao	A1

Answer: **50 minutes**

Question 2

£217.50 ÷ 29	M1
£7.50 cao	A1

Answer: **£7.50**

Question 3

price per gram or grams per penny for one pack	M1
same measure for the other pack (or both scaled to a common weight)	M1
Pack B, with a correct comparison	A1

Answer: **Pack B**

Question 4

£8.46 cao	B1

Answer: **£8.46**

Question 5

£360 ÷ 45	M1
£8 cao	A1

Answer: **£8**

Question 6

£43.92 cao	B1

Answer: **£43.92**

Question 7

32 ÷ 4 = 8	M1
144 cao	A1

Answer: **144**

Question 8

y = kx with k = 49 ÷ 7	M1
35 cao	A1

Answer: **35**

Question 9

£11.52 cao	B1

Answer: **£11.52**

Question 10

scale factor 16/8 or amount for 1 person	M1
650 g of flour	A1
300 g of butter	A1

Answer: **650 g of flour, 300 g of butter**

Question 11

price per gram or grams per penny for one pack	M1
same measure for the other pack (or both scaled to a common weight)	M1
Pack B, with a correct comparison	A1

Answer: **Pack B**

Question 12

216 ÷ 9 = 24 words per minute	M1
1080 ÷ 24	M1
45 minutes cao	A1

Answer: **45 minutes**

Question 13

price per gram or grams per penny for one pack	M1
same measure for the other pack (or both scaled to a common weight)	M1
Pack B, with a correct comparison	A1

Answer: **Pack B**

Question 14

£11.55 x 24	M1
£277.20 cao	A1

Answer: **£277.20**

Question 15

42 ÷ 6 = 7	M1
112 cao	A1

Answer: **112**

Question 16

price per gram or grams per penny for one pack	M1
same measure for the other pack (or both scaled to a common weight)	M1
Pack A, with a correct comparison	A1

Answer: **Pack A**

Question 17

scale factor 16/4 or amount for 1 person	M1
500 ml of milk	A1
300 g of rice	A1

Answer: **500 ml of milk, 300 g of rice**

Question 18

40 x 1.3	M1
$52 cao	A1

Answer: **$52**

Question 19

(a) 0.125 litres or 125 ml cao	B1

(a) Answer: **0.125 litres**

(b) Multiply 0.125 by 10 or equivalent method	M1
(b) 1.25 litres cao	A1

(b) Answer: **1.25 litres**

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Question 20

£0.60 cao	**B1**

Answer: **£0.60**

Question 21

cost per calculator = 22.50/5 = 4.50	**M1**
£40.50 cao	**A1**

Answer: **£40.50**

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