3.5 Direct Proportion and the Unitary Method: Test Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write down the unit fraction for each quantity.

(a) What is 1 of 12 as a fraction of a whole? **(1)**

(b) What is 1 of 8 as a fraction of a whole? **(1)**

(c) What is 1 of 20 as a fraction of a whole? **(1)**

(d) What is 1 of 5 as a fraction of a whole? **(1)**

2 One of a type of ticket costs £1.86. Work out the cost of 9 of them.

(1)

3 One of a type of apple costs £4.66. Work out the cost of 6 of them.

(1)

4 £1 = 1.2 dollars. Convert $96 to pounds.

(2)

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5 £1 = 2.5 dollars. Convert £400 to dollars.

(2)

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6 Scale the recipe amounts down to one portion.

(a) A soup recipe serves 4 and needs 800 ml of stock. How much stock for 1 serving? **(1)**

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(b) A tray of muffins makes 12 and uses 360 g sugar. How much sugar per muffin? **(1)**

.....

(c) A batch of 9 cookies uses 270 g butter. What is the butter for 1 cookie? **(1)**

.....

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7 A shop sells pens at a constant price each. 11 pens cost £60.61. How many pens can be bought for £363.66?

(3)

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8 Ria earns £375 for 25 hours of work. Work out her hourly rate of pay.

(2)

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9 A shop sells pasta in two sizes. Pack A is 250 g for £0.83. Pack B is 1500 g for £4.10. Which pack is better value? You must show your working.

(3)

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10 Write as a ratio in simplest form: 300 g of flour to 2 cups of flour.

(2)

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11 Ben is paid £10.20 per hour. He works 22 hours in a week. How much is he paid?

(2)

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12 y is directly proportional to x. When x = 2, y = 16. Work out the value of y when x = 20.

(2)

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13 A shop sells pasta in two sizes. Pack A is 500 g for £2.47. Pack B is 1000 g for £4.35. Which pack is better value? You must show your working.

(3)

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14 Which is better value: 6 cans for £3.30 or 10 cans for £5.25? Show your working.

(3)

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15 A shop sells coffee in two sizes. Pack A is 300 g for £1.89. Pack B is 800 g for £4.52. Which pack is better value? You must show your working.

(3)

---

16 A shop sells tickets at a constant price each. 9 tickets cost £19.17. How many tickets can be bought for £115.02?

(3)

---

17 12 identical chairs cost £300. Find the cost of 5 chairs.

(2)

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18 9 litres of paint cover 45 m² of wall. How many litres of paint are needed to cover 60 m², assuming the same rate of coverage?

(2)

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19 A car travels 180 miles in 3 hours at a constant speed. What distance does it travel in 1 hour?

(1)

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20 9 identical tiles cover 4.5 m². Find the area covered by 1 tile.

(1)

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Mark scheme · 3.5 Direct Proportion and the Unitary Method: Test Pack

Question 1

(a) 1/12 cao	B1
(a) Answer: **1/12**	
(b) 1/8 cao	B1
(b) Answer: **1/8**	
(c) 1/20 cao	B1
(c) Answer: **1/20**	
(d) 1/5 cao	B1
(d) Answer: **1/5**	

Question 2

£16.74 cao	B1
Answer: **£16.74**	

Question 3

£27.96 cao	B1
Answer: **£27.96**	

Question 4

96 ÷ 1.2	M1
£80 cao	A1
Answer: **£80**	

Question 5

400 x 2.5	M1
$1000 cao	A1
Answer: **$1000**	

Question 6

(a) 200 ml cao	B1
(a) Answer: **200 ml**	
(b) 30 g cao	B1
(b) Answer: **30 g**	
(c) 30 g cao	B1
(c) Answer: **30 g**	

Question 7

£60.61 ÷ 11 = £5.51	M1
£363.66 ÷ £5.51	M1
66 cao	A1
Answer: **66**	

Question 8

£375 ÷ 25	M1
£15 cao	A1
Answer: **£15**	

Question 9

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 10

Divide both parts by 2 or show simplification method	M1
150:1 cao	A1
Answer: **150:1**	

Question 11

£10.20 x 22	M1
£224.40 cao	A1
Answer: **£224.40**	

Question 12

y = kx with k = 16 ÷ 2 = 8	M1
160 cao	A1
Answer: **160**	

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

Find unit price for 6 cans: 3.30/6 or equivalent shown	M1
Find unit price for 10 cans: 5.25/10 or equivalent shown	M1
State better value: 10 cans for £5.25 cao	A1
Answer: **10 cans for £5.25**	

Question 15

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 16

£19.17 ÷ 9 = £2.13	M1
£115.02 ÷ £2.13	M1
54 cao	A1
Answer: **54**	

Question 17

cost per chair = 300/12 = 25	M1
£125 cao	A1
Answer: **£125**	

Question 18

paint per m^2 = 9/45 = 0.2	M1
12 litres cao	A1
Answer: **12 litres**	

Question 19

60 miles cao	B1
Answer: **60 miles**	

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Question 20

0.5 m² cao **B1**

Answer: **0.5 m^2**

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