2.102 Line Graphs and Conversion Graphs: Test Pack

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The conversion graph shows a straight line through (0, 0) and (3, 540). The horizontal axis is cups and the vertical axis is millilitres. How many millilitres are in 2 cups?

- ☐ A) 320 ml
- ☐ B) 360 ml
- ☐ C) 540 ml
- ☐ D) 200 ml
- ☐ E) 400 ml

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2 £1 is worth 1.6 dollars. Kofi changes £130 into dollars. How many dollars does Kofi get?

- ☐ A) 81.25 dollars
- ☐ B) 208 dollars
- ☐ C) 20.8 dollars
- ☐ D) 131.6 dollars
- ☐ E) 207 dollars

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3 £1 is worth 1.8 euros. Tariq changes £290 into euros. How many euros does Tariq get?

- ☐ A) 5,220 euros
- ☐ B) 291.8 euros
- ☐ C) 232 euros
- ☐ D) 522 euros
- ☐ E) 523 euros

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4 £1 is worth 1.2 dollars. Kwame has 348 dollars. How many pounds is that?

- [ ] A) £290.00
- [ ] B) £346.80
- [ ] C) £291.00
- [ ] D) £289.00
- [ ] E) £417.60

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5 £1 is worth 1.2 euros. Fatima has 420 euros. How many pounds is that?

- [ ] A) £504.00
- [ ] B) £3,500.00
- [ ] C) £350.00
- [ ] D) £418.80
- [ ] E) £35.00

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6 £1 is worth 2.5 dollars. Ewan has 925 dollars. How many pounds is that?

- [ ] A) £37.00
- [ ] B) £370.00
- [ ] C) £922.50
- [ ] D) £371.00
- [ ] E) £2,312.50

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7 £1 is worth 2 euros. Harry changes £270 into euros. How many euros does Harry get?

- [ ] A) 540 euros
- [ ] B) 5,400 euros
- [ ] C) 272 euros
- [ ] D) 135 euros
- [ ] E) 54 euros

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8 £1 is worth 1.2 dollars. Ben changes £340 into dollars. How many dollars does Ben get?

- [ ] A) 407 dollars
- [ ] B) 408 dollars
- [ ] C) 4,080 dollars
- [ ] D) 341.2 dollars
- [ ] E) 40.8 dollars

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9 The miles-to-kilometres conversion graph is a straight line through (0, 0) and (5, 8). How many kilometres are there in 3 miles according to the graph?

- [ ] A) 6.4 km
- [ ] B) 2.5 km
- [ ] C) 5 km
- [ ] D) 4.8 km
- [ ] E) 3.6 km

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10 £1 is worth 1.2 dollars. Dylan has 168 dollars. How many pounds is that?

- [ ] A) £201.60
- [ ] B) £140.00
- [ ] C) £166.80
- [ ] D) £141.00
- [ ] E) £1,400.00

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11 From the miles-to-kilometres graph (5 miles = 8 km), which of these points lies on the line?

- [ ] A) (1, 1.8)
- [ ] B) (4, 7)
- [ ] C) (2, 3.2)
- [ ] D) (3, 5)
- [ ] E) (2, 3)

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12 £1 is worth 2.5 dollars. Sana changes £240 into dollars. How many dollars does Sana get?

- [ ] A) 600 dollars
- [ ] B) 601 dollars
- [ ] C) 6,000 dollars
- [ ] D) 242.5 dollars
- [ ] E) 96 dollars

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13 The cups graph has the point (4, 720) on it. Which sentence describes that point?

- ☐ A) 4 ml equals 720 cups
- ☐ B) 4 cups equals 720 ml
- ☐ C) 720 cups equals 4 ml
- ☐ D) 4 cups equals 720 litres
- ☐ E) 4 cups equals 72 ml

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14 £1 is worth 1.5 euros. Oliver has 300 euros. How many pounds is that?

- ☐ A) £120.00
- ☐ B) £298.50
- ☐ C) £200.00
- ☐ D) £450.00
- ☐ E) £199.00

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15 £1 is worth 2.5 dollars. Ben changes £160 into dollars. How many dollars does Ben get?

- ☐ A) 162.5 dollars
- ☐ B) 4,000 dollars
- ☐ C) 64 dollars
- ☐ D) 400 dollars
- ☐ E) 40 dollars

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16 £1 is worth 1.2 euros. Chloe changes £100 into euros. How many euros does Chloe get?

- ☐ A) 119 euros
- ☐ B) 120 euros
- ☐ C) 12 euros
- ☐ D) 1,200 euros
- ☐ E) 101.2 euros

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17 A visitor line graph shows the number of visitors to a park on the first day of each month from January to June: Jan 120, Feb 150, Mar 180, Apr 170, May 210, Jun 240.

(a) Describe the overall trend from January to June. **(1)**

(b) Between which two consecutive months did the number of visitors decrease? **(1)**

18 A conversion graph shows a straight line through (0, 0) and (8, 600). The horizontal axis is loaves and the vertical axis is grams. Work out the mass, in grams, of 3 loaves.

(3)

19 Using the miles-to-kilometres graph (through (0,0) and (5,8)), find the gradient of the line and explain what this gradient represents in context.

(3)

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20 A runner plans a route of 10 miles. Use the miles-to-kilometres conversion graph (5 miles = 8 km) to answer the questions.

(a) How many kilometres is the 10-mile route? **(1)**

.....

(b) How long will it take the runner to complete the route if they run at 8 km/h? **(2)**

.....

(c) If the runner instead runs at 5 miles per hour, what is that speed in km/h? **(2)**

.....

(d) The runner wants to finish in 1 hour 40 minutes. What average speed in km/h is required? **(3)**

.....

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21 Using the miles-to-kilometres graph, how many miles are there in 12.8 km?

- ☐ A) 8 miles
- ☐ B) 9 miles
- ☐ C) 7.5 miles
- ☐ D) 8.5 miles
- ☐ E) 6 miles

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Mark scheme · 2.102 Line Graphs and Conversion Graphs: Test Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

correct option B (360 ml) cao **B1**

Answer: B) 360 ml (since 3 cups = 540 ml so 1 cup = 180 ml; 2 x 180 = 360 ml.)

Question 2

correct option B (208 dollars) cao **B1**

Answer: B) 208 dollars

Question 3

correct option D (522 euros) cao **B1**

Answer: D) 522 euros

Question 4

correct option A (£290.00) cao **B1**

Answer: A) £290.00

Question 5

correct option C (£350.00) cao **B1**

Answer: C) £350.00

Question 6

correct option B (£370.00) cao **B1**

Answer: B) £370.00

Question 7

correct option A (540 euros) cao **B1**

Answer: A) 540 euros

Question 8

correct option B (408 dollars) cao **B1**

Answer: B) 408 dollars

Question 9

correct option D (4.8 km) cao **B1**

Answer: D) 4.8 km

Question 10

correct option B (£140.00) cao **B1**

Answer: B) £140.00

Question 11

correct option C ((2, 3.2)) cao **B1**

Answer: C) (2, 3.2)

Question 12

correct option A (600 dollars) cao **B1**

Answer: A) 600 dollars

Question 13

correct option B (4 cups = 720 ml) cao **B1**

Answer: B) 4 cups equals 720 ml

Question 14

correct option C (£200.00) cao **B1**

Answer: C) £200.00

Question 15

correct option D (400 dollars) cao **B1**

Answer: D) 400 dollars

Question 16

correct option B (120 euros) cao **B1**

Answer: B) 120 euros

Question 17

(a) overall increase from 120 to 240; visitors generally rise oe **B1**

(a) Answer: Overall the number of visitors increases from January to June (rising from 120 to 240).

(b) correctly identifies March to April (180 to 170) cao **B1**

(b) Answer: Between March and April (180 down to 170).

Question 18

find mass per loaf: 600 ÷ 8 (= 75) or equivalent **M1**

multiply by 3 seen (3 x 75) **M1**

225 g cao **A1**

Answer: 225 g (600 ÷ 8 = 75 g per loaf; 3 x 75 = 225)

Question 19

correct method for gradient: rise/run = 8/5 seen **M1**

numeric gradient 1.6 seen **M1**

context: 1 mile corresponds to 1.6 km or gradient is 1.6 km per mile cao **A1**

Answer: Gradient = 8/5 = 1.6. This means 1 mile = 1.6 kilometres (the line rises 1.6 km for each mile).

Question 20

(a) 16 km cao **B1**

(a) Answer: 16 km (10 x 1.6 = 16).

(b) method: time = distance/speed (16 ÷ 8) seen **M1**

(b) 2 hours cao **A1**

(b) Answer: 2 hours (16 ÷ 8 = 2).

(c) method: convert miles to km using 1 mile = 1.6 km (5 x 1.6) seen **M1**

(c) 8 km/h cao **A1**

(c) Answer: 8 km/h (5 x 1.6 = 8).

(d) convert 1 h 40 min to hours (1 + 40/60 = 5/3) seen **M1**

(d) use speed = distance/time with 16 km and time 5/3 h (16 ÷ 5/3) or equivalent **M1**

(d) 9.6 km/h cao **A1**

(d) Answer: 9.6 km/h (1 h 40 min = 5/3 h; speed = 16 ÷ (5/3) = 16 x 3/5 = 48/5 = 9.6).

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Question 21

correct option A (8 miles) cao **B1**

Answer: A) 8 miles

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