2.22 Multi-Step Reasoning Challenge: 10-minute Pack

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A square garden has the same area as a rectangular garden measuring 12 m by 3 m. What is the perimeter of the square garden?

(3)

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2 A sequence of patterns is made from dots. Pattern 1 has 4 dots, Pattern 2 has 9 dots, and Pattern 3 has 16 dots. If this pattern continues, how many dots will Pattern 7 have?

(2)

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3 A number between 100 and 200 is a multiple of both 6 and 8. It is also one more than a multiple of 7. What is the number?

- ☐ A) 96
- ☐ B) 120
- ☐ C) 144
- ☐ D) 168
- ☐ E) 192

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4 Priya is 4 years older than her brother Kofi. In 6 years' time, the sum of their ages will be 36. How old is Priya now?

(3)

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Mark scheme · 2.22 Multi-Step Reasoning Challenge: 10-minute Pack

Question 1

finds the rectangle's area = 12 x 3 = 36 m²	**M1**
finds the square's side length = $\sqrt{36}$ = 6 m	**M1**
24 m, from 4 x 6	**A1**

Answer: 24 m

Question 2

spots that the dot totals are square numbers of (pattern number + 1), i.e. 2^2, 3^2, 4^2	**M1**
64, from 8^2	**A1**

Answer: 64

Question 3

lists multiples of the lowest common multiple of 6 and 8 (24) between 100 and 200: 120, 144, 168, 192	**M1**
tests each against 'one more than a multiple of 7'	**M1**
B) 120	**A1**

Answer: B) 120

Question 4

sets Kofi's age now as k and Priya's as k + 4	**M1**
forms (k + 6) + (k + 4 + 6) = 36 and simplifies to 2k + 16 = 36	**M1**
14, from k = 10 so Priya = k + 4	**A1**

Answer: Priya is 14 now

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