2.47-3 Mixed Problem-Solving Paper C: 30-minute Pack

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

Total Marks

Name: _____ Date: ____ / ____ / _____

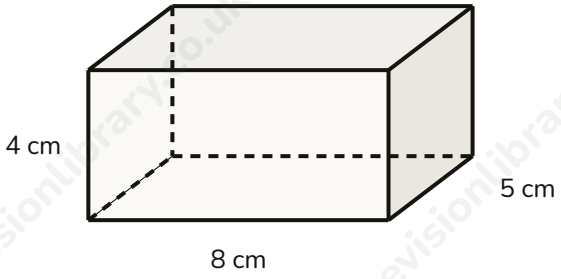
Answer ALL questions. Show all your working.

1 A bag contains 5 red counters, 3 blue counters and 2 green counters, and no others. A counter is picked at random. What is the probability that it is not blue?

(2)

---

2 A cuboid box has length 8 cm, width 5 cm and height 4 cm. Find its volume.



(3)

© Revision Library | revisionlibrary.co.uk

3 A shop increases the price of a bicycle by 20%. The new price is £216.

(a) Find the original price of the bicycle. **(2)**

.....

(b) In a sale, the shop then reduces the new price of £216 by 25%. Find the sale price. **(2)**

.....

---

4 A number, N, is a whole number such that $10 < N < 20$. N is a factor of 84. N is also a multiple of 6.

(a) Find the value of N. **(2)**

.....

(b) Write N as a product of its prime factors. **(1)**

---

5 A charity shop has 72 books on a shelf. 5/9 of the books are fiction. How many of the books are fiction?

(2)

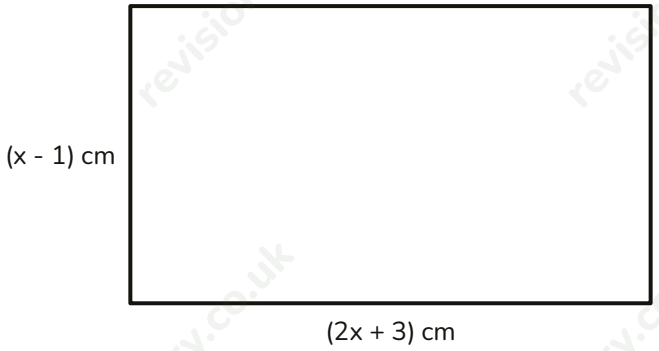
© Revision Library | revisionlibrary.co.uk

6 Isla drives 80 km at an average speed of 40 km/h. She then drives a further 60 km at an average speed of 30 km/h. Find her average speed for the whole journey.

(4)

---

7 A rectangle has length (2x + 3) cm and width (x - 1) cm. The perimeter of the rectangle is 34 cm.



(a) Form an equation in x. **(1)**

(b) Solve your equation to find the value of x. **(2)**

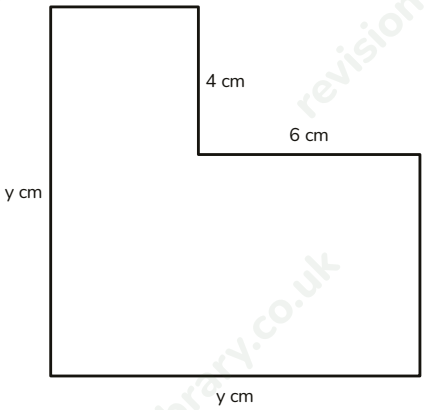
.....

(c) Find the length of the rectangle. **(1)**

.....

© Revision Library | revisionlibrary.co.uk

8 A square has side length y cm. A rectangle measuring 6 cm by 4 cm is cut from one corner of the square. The area that remains is 25 cm².



(a) Form an equation in y. **(1)**

(b) Find the value of y. **(3)**

.....

9 The ratio of Sam's age to his sister Meera's age is 3:5. The sum of their present ages is 40 years. Find Meera's age in 6 years' time.

(4)

© Revision Library | revisionlibrary.co.uk

10 A film starts at 14:52 and finishes at 16:30. How long, in minutes, does the film last?

(2)

---

11 A sequence begins 5, 9, 13, 17, ... Write down the next two terms of the sequence.

(2)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.47-3 Mixed Problem-Solving Paper C: 30-minute Pack

Question 1

5 + 3 + 2 = 10 (total counters), and 5 + 2 = 7 (not blue)	**M1**
7/10 oe (accept 0.7 or 70%) cao	**A1**

Answer: 7/10

Question 2

8 x 5 = 40 (or another correct pairing of two dimensions)	**M1**
40 x 4 (multiplies by the third dimension), complete correct method	**M1**
160 cm³ cao	**A1**

Answer: 160 cm^3

Question 3

(a) recognises the new price is 120% of the original, and divides: 216 / 1.2 (oe)	**M1**
(a) £180 cao	**A1**

(a) Answer: £180

(b) 25% of 216 = 54 (or 216 x 0.75)	**M1**
(b) £162 cao	**A1**

(b) Answer: £162

Question 4

(a) lists factors of 84 between 10 and 20 (12 and 14), or lists multiples of 6 between 10 and 20 (12 and 18) and tests which divide 84	**M1**
(a) 12 cao	**A1**

(a) Answer: 12

(b) 2 x 2 x 3 oe (accept 2^2 x 3), ft their N	**B1**

(b) Answer: 2 x 2 x 3 (2^2 x 3)

Question 5

72 / 9 = 8 (finds one ninth)	**M1**
40 cao	**A1**

Answer: 40 books

Question 6

80 / 40 = 2 hours (time for the first part of the journey)	**M1**
60 / 30 = 2 hours (time for the second part of the journey)	**M1**
(80 + 60) / (2 + 2) (complete correct method for average speed), ft their times	**M1**
35 km/h cao	**A1**

Answer: 35 km/h

Question 7

(a) 2(2x + 3) + 2(x - 1) = 34 oe (accept 6x + 4 = 34)	**B1**

(a) Answer: 2(2x + 3) + 2(x - 1) = 34

(b) 6x + 4 = 34, so 6x = 30, dependent on a correct equation from part (a)	**dM1**
(b) x = 5 cao	**A1**

(b) Answer: x = 5

(c) 13 cm cao, ft their x, from 2 x 5 + 3	**B1**

(c) Answer: 13 cm

Question 8

(a) y^2 - 24 = 25 oe (accept y^2 - 6 x 4 = 25)	**B1**

(a) Answer: y^2 - 24 = 25

(b) y^2 = 49, dependent on a correct equation from part (a)	**dM1**
(b) takes the square root of 49	**M1**
(b) y = 7 cao (rejects y = -7 since a length must be positive)	**A1**

(b) Answer: y = 7

Question 9

3 + 5 = 8 (total parts)	**M1**
40 / 8 = 5 (value of one part)	**M1**
Meera's present age = 5 x 5 = 25, ft	**M1**
31 cao, from 25 + 6	**A1**

Answer: 31 years

Question 10

adds correctly to a landmark time, e.g. 14:52 to 16:00 is 68 minutes, or converts both times to minutes since midnight	**M1**
98 minutes cao	**A1**

Answer: 98 minutes

Question 11

identifies a constant difference of 4 between consecutive terms	**M1**
21 and 25 cao, both correct	**A1**

Answer: 21, 25

© Revision Library | revisionlibrary.co.uk