6.2 Pre-Algebra and Sequences: 30-minute Pack

National Curriculum (2014) Mathematics - KS2 Algebra (missing numbers, formulae, sequences) · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Find the missing number: 9 x ___ = 63

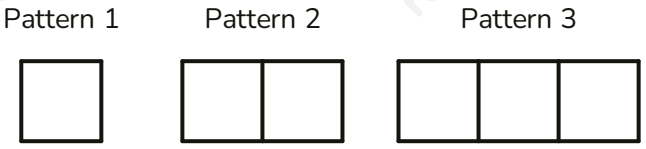
(1)

2 Find the missing number: ___ / 6 = 8

(1)

3 Freya makes patterns from matchsticks by joining squares in a row. Pattern 1 has 1 square (4 matchsticks). Pattern 2 has 2 squares (7 matchsticks). Pattern 3 has 3 squares (10 matchsticks).

Diagram NOT accurately drawn



(a) Find the number of matchsticks in Pattern 4. **(1)**

(b) Find the number of matchsticks in Pattern 12. **(2)**

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4 Find the next two terms in this sequence: 3, 8, 13, 18, ___, ___

(2)

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5 The sum of 4 consecutive even numbers is 148.

What is the smallest of the 4 numbers?

Answer: ___

(2)

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6 Solve 9x - 6 = 75.

Answer: x = ___

(2)

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7 a and b are positive whole numbers with a + b = 23.

How many different pairs (a, b) are there? Count (1, 22) and (22, 1) as different pairs.

Answer: ___

(2)

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8 Simplify n + 7n.

Answer: ___

(1)

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9 Find the missing number in this sequence.

896, 906, ___, 926, 936, 946

Answer: ___

(1)

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10 T = 4x + 2y.

Work out T when x = 5 and y = 6.

Answer: ___

(2)

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11 Find the missing number: 3 x ___ + 4 = 25

(2)

---

12 A pen costs 8p. Tom buys m pens.

Write an expression for the total cost in pence.

Answer: ___

(1)

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13 A taxi charges £5 to start and £5 for each mile. A journey is m miles long.

Write an expression for the total cost in pounds.

Answer: ___

(2)

14 Simplify 6n + 1 + n + 2.

Answer: ___

(2)

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Mark scheme · 6.2 Pre-Algebra and Sequences: 30-minute Pack

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

Question 1

7 cao	B1

Answer: **7**

Question 2

48 cao	B1

Answer: **48**

Question 3

(a) 13 cao	B1

(a) Answer: **13**

(b) 4 + 11 x 3 seen, or an equivalent correct method	M1
(b) 37 cao	A1

(b) Answer: **37**

Question 4

23 cao	B1
28 cao	B1

Answer: **23, 28**

Question 5

uses the mean or tests numbers	M1
34 cao	A1

Answer: **34**

Question 6

adds or divides first	M1
x = 9 cao	A1

Answer: **x = 9**

Question 7

lists pairs systematically	M1
22 cao	A1

Answer: **22**

Question 8

8n cao	B1

Answer: **8n**

Question 9

916 cao	B1

Answer: **916**

Question 10

4 x 5 or 2 x 6 seen	M1
32 cao	A1

Answer: **32**

Question 11

25 - 4 (= 21) seen or implied	M1
7 cao	A1

Answer: **7**

Question 12

8m cao	B1

Answer: **8m**

Question 13

one correct term	M1
5m + 5 cao	A1

Answer: **5m + 5**

Question 14

collects the v terms or the numbers	M1
7n + 3 cao	A1

Answer: **7n + 3**

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