6.3 Algebra: Formulae, Sequences and Equations: 1-hour Pack

Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Simplify 9a + 5 + a + 6.

Answer: ___

(2)

---

2 A function machine divides by 6.

The output is 240. What was the input?

Answer: ___

(1)

---

3 The rule for a sequence is: start at 19 and add 2 each time. The 1st term is 19.

What is the 25th term?

Answer: ___

(2)

© Revision Library | revisionlibrary.co.uk

4 A function machine divides by 3.

The output is 48. What was the input?

Answer: ___

(1)

---

5 A function machine adds 11.

What is the output when the input is 19?

Answer: ___

(1)

---

6 The rule for a sequence is: start at 16 and add 8 each time. The 1st term is 16.

What is the 12th term?

Answer: ___

(2)

---

7 a and b are positive whole numbers with a + b = 18.

How many different pairs (a, b) are there? Count (1, 17) and (17, 1) as different pairs.

Answer: ___

(2)

© Revision Library | revisionlibrary.co.uk

8 Jade has 23 more marbles than Dev. Together they have 49 marbles.

How many marbles does Dev have?

Answer: ___

(2)

---

9 A function machine divides by 4.

The output is 288. What was the input?

Answer: ___

(1)

---

10 Simplify 3x + 1 + 4x + 2.

Answer: ___

(2)

---

11 Here is a sequence: 17, 25, 33, 41, 49, ...

The nth term is of the form 8n + b. Find the nth term.

Answer: ___

(2)

© Revision Library | revisionlibrary.co.uk

12 ___ divided by 6 = 22

Answer: ___

(1)

---

13 8 x ___ + 27 = 179

Answer: ___

(2)

---

14 Here is a sequence: 20, 28, 36, 44, 52, ...

The nth term is of the form 8n + b. Find the nth term.

Answer: ___

(2)

---

15 3 x ___ - 8 = 25

Answer: ___

(2)

© Revision Library | revisionlibrary.co.uk

16 Two whole numbers have a sum of 16 and a product of 60.

What are the two numbers? Write the smaller one first.

Answer: ___ and ___

(2)

---

17 Find the rule of the sequence and write the next term: 12, 9, 6, 3, ...

(2)

---

18 Two whole numbers have a sum of 12 and a difference of 4.

What are the two numbers? Write the smaller one first.

Answer: ___ and ___

(2)

---

19 A function machine multiplies by 6 then adds 12.

What is the output when the input is 19?

Answer: ___

(2)

© Revision Library | revisionlibrary.co.uk

20 ___ + 35 = 42

Answer: ___

(1)

---

21 The cost, C pounds, of hiring a bike for n hours is C = 2n + 11.

Work out C when n = 4.

Answer: £___

(2)

---

22 Solve 8x + 10 = 170.

Answer: x = ___

(2)

---

23 The nth term of a sequence is 8n + 2.

What is the 20th term?

Answer: ___

(2)

© Revision Library | revisionlibrary.co.uk

24 Ella has 15 more marbles than Amira. Together they have 23 marbles.

How many marbles does Amira have?

Answer: ___

(2)

---

25 Simplify a + 4 + a + 5.

Answer: ___

(2)

---

26 Simplify 2a + 7a.

Answer: ___

(1)

---

27 Here is a sequence: 17, 26, 35, 44, 53, ...

Write the next two terms.

Answer: ___, ___

(2)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 6.3 Algebra: Formulae, Sequences and Equations: 1-hour Pack

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

Question 1

collects the v terms or the numbers **M1**
10a + 11 cao **A1**
Answer: **10a + 11**

Question 2

1440 cao **B1**
Answer: **1440**

Question 3

24 steps of 2 seen **M1**
67 cao **A1**
Answer: **67**

Question 4

144 cao **B1**
Answer: **144**

Question 5

30 cao **B1**
Answer: **30**

Question 6

11 steps of 8 seen **M1**
104 cao **A1**
Answer: **104**

Question 7

lists pairs systematically **M1**
17 cao **A1**
Answer: **17**

Question 8

49 - 23 = 26 seen **M1**
13 cao **A1**
Answer: **13**

Question 9

1152 cao **B1**
Answer: **1152**

Question 10

collects the v terms or the numbers **M1**
7x + 3 cao **A1**
Answer: **7x + 3**

Question 11

finds the common difference **M1**
8n + 9 cao **A1**
Answer: **8n + 9**

Question 12

132 cao **B1**
Answer: **132**

Question 13

179 - 27 = 152 seen **M1**
19 cao **A1**
Answer: **19**

Question 14

finds the common difference **M1**
8n + 12 cao **A1**
Answer: **8n + 12**

Question 15

25 + 8 = 33 seen **M1**
11 cao **A1**
Answer: **11**

Question 16

tests pairs that add to the sum **M1**
6 and 10 cao **A1**
Answer: **6 and 10**

Question 17

rule subtract 3 each time or -3 oe **B1**
next term 0 cao **B1**
Answer: **0**

Question 18

tests pairs or halves the sum and difference **M1**
4 and 8 cao **A1**
Answer: **4 and 8**

Question 19

first operation applied correctly **M1**
126 cao **A1**
Answer: **126**

Question 20

7 cao **B1**
Answer: **7**

Question 21

2 x 4 seen **M1**
£19 cao **A1**
Answer: **£19**

© Revision Library | revisionlibrary.co.uk

Question 22

subtracts or divides first	M1
x = 20 cao	A1

Answer: **x = 20**

Question 23

8 x 20 seen	M1
162 cao	A1

Answer: **162**

Question 24

23 - 15 = 8 seen	M1
4 cao	A1

Answer: **4**

Question 25

collects the v terms or the numbers	M1
2a + 9 cao	A1

Answer: **2a + 9**

Question 26

9a cao	B1

Answer: **9a**

Question 27

identifies the rule	M1
62, 71 cao	A1

Answer: **62, 71**

© Revision Library | revisionlibrary.co.uk