ENGLAND GCSE MATHS AQA HIGHER · UNIT 4 · 25 QUESTIONS

Algebra, Graphs — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A ladder leans against a wall. It rises 2 m for every 4 m it goes across. The gradient of the ladder is**

- **A** $\frac{1}{2}$
- **B** 2
- **C** $\frac{3}{4}$
- **D** $\frac{2}{5}$

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2 A wooden footbridge rises 3 m over a run of 9 m. Its gradient is

- **A** 3
- **B** $\frac{2}{3}$
- **C** $\frac{1}{4}$
- **D** $\frac{1}{3}$

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3 A sunflower grows 4 cm every week. The gradient of its height-time graph is

- **A** 5
- **B** 4
- **C** 3
- **D** 8

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4 A kite string has gradient $\frac{4}{3}$. It goes 12 m across. How high is the kite?

- A 20
- B 24
- C 16
- D 12

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5 A bicycle path falls 2 m for every 5 m it goes across. The gradient of the path is

- A -2/5
- B -5/2
- C $\frac{2}{5}$
- D -3/5

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6 **A passenger aeroplane climbs 300 m for every 2000 m it travels forwards. The gradient of its flight path is**

- **A** $\frac{3}{20}$
- **B** $\frac{20}{3}$
- **C** $\frac{1}{10}$
- **D** $\frac{1}{5}$

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7 **The graph of y = f(x) + 2 is the graph of y = f(x) moved**

- **A** 2 units up
- **B** 2 units left
- **C** 2 units right
- **D** 2 units down

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8 The graph of y = sin x has a maximum value of

- A 0
- B 2
- C 1
- D -1

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9 The midpoint of the line joining (1, 3) and (3, 5) is

- A (1, 5)
- B (1, 1)
- C (3, 3)
- D (2, 4)

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10 **A straight line passes through (2, 1) and (6, 9). Its gradient is**

- **A** 3
- **B** 2
- **C** $\frac{1}{2}$
- **D** 12

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11 **For the equation y = 2x - 4, the value of y when x = 2 is**

- **A** 8
- **B** 0
- **C** -2
- **D** 2

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12 The graph of $y = 2^x$ passes through the point with $x = 3$. The value of y is

- A 8
- B 6
- C 16
- D 7

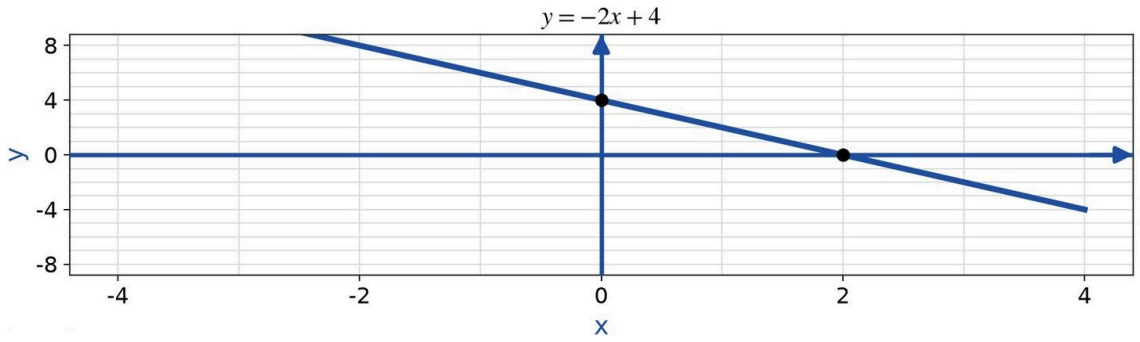
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13 The y-intercept of $y = -2x - 3$ is

- A -3
- B -5
- C -2
- D 3

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14 **The graph below shows y = -2x + 4. The value of y when x = -2 is**



A 0

B 8

C 6

D 10

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15 A line is parallel to $y = 5x + 4$. The gradient of the parallel line is

- **A** 5
- **B** $\frac{1}{5}$
- **C** 6
- **D** -5

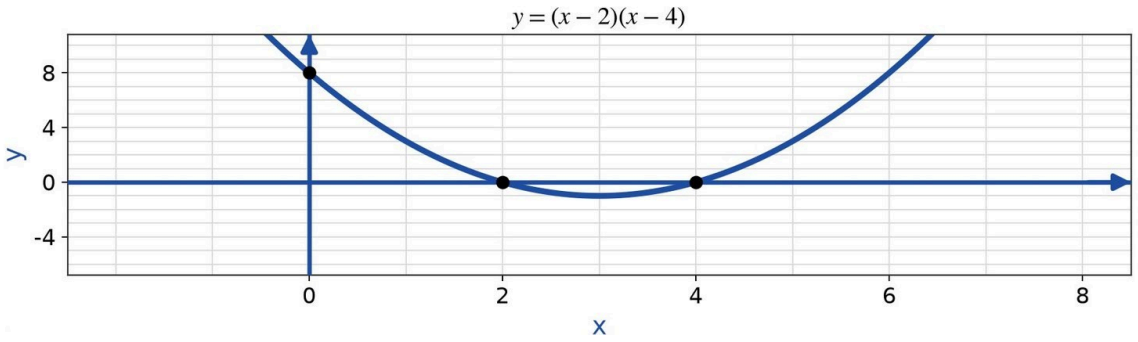
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16 The gradient of the curve $y = x^2$ at the point where $x = 4$ is

- **A** 5
- **B** 10
- **C** 8
- **D** 16

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17 **The graph below shows y = x² - 6x + 8. The roots of the equation x² - 6x + 8 = 0 are**



A x = -2 and x = -4

B x = 2 and x = -4

C x = 3 and x = 4

D x = 2 and x = 4

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18 The circle $x^2 + y^2 = 9$ has radius

- **A** 3
- **B** 4
- **C** 6
- **D** 9

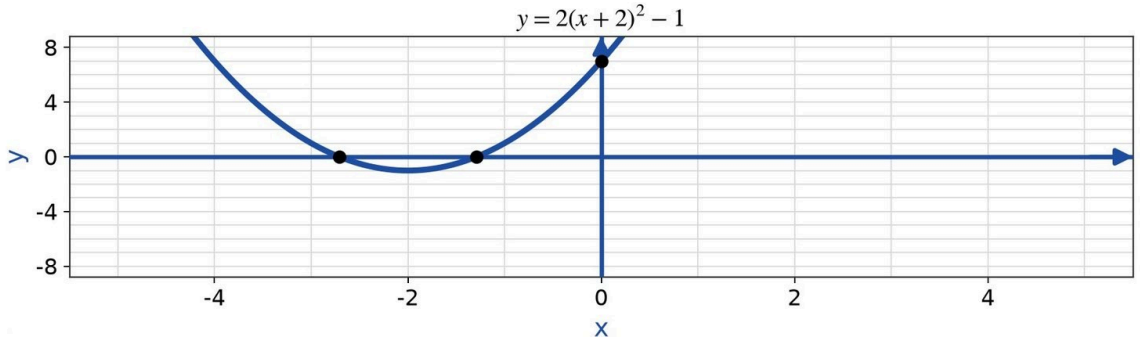
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19 A line is perpendicular to y = 1/4x + 1. The gradient of the perpendicular line is

- **A** $\frac{1}{4}$
- **B** 4
- **C** -4
- **D** -1/4

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20 **The graph below shows $y = 2(x + 2)^2 - 1$. The vertex of the graph is**



A (-2, 1)

B (2, -1)

C (-2, -1)

D (-3, -2)

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21 **The graph of y = f(x - 2) is the graph of y = f(x) moved**

- A 2 units up
- B 2 units right
- C 2 units to the left
- D 2 units down

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22 **The midpoint of the line joining (1, 2) and (7, 8) is**

- A (4, 5)
- B (7, 2)
- C (1, 8)
- D (3, 3)

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23 A straight line passes through (3, 4) and (4, 7). Its gradient is

- **A** 5
- **B** 3
- **C** $\frac{1}{3}$
- **D** 4

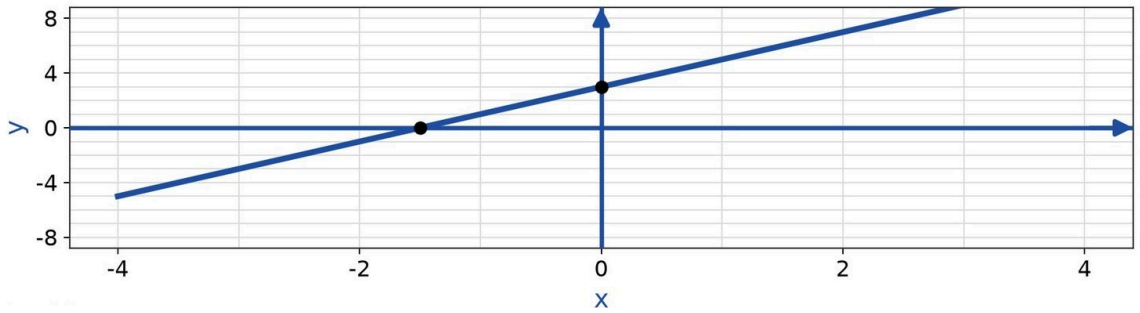
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24 For the equation y = -2x - 4, the value of y when x = 5 is

- **A** -14
- **B** -16
- **C** -6
- **D** -12

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25 **The graph below shows a straight line through (0, 3). The gradient of the line is**



A 3

B 2

C 4

D -2

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ANSWER KEY

1.	A	**10.**	B	**19.**	C
2.	D	**11.**	B	**20.**	C
3.	B	**12.**	A	**21.**	B
4.	C	**13.**	A	**22.**	A
5.	A	**14.**	B	**23.**	B
6.	A	**15.**	A	**24.**	A
7.	A	**16.**	C	**25.**	B
8.	C	**17.**	D		
9.	D	**18.**	A		

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