ENGLAND GCSE MATHS OCR 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 kite string has gradient $\frac{2}{3}$. It goes 6 m across. How high is the kite?

- **A** 4
- **B** 2
- **C** 8
- **D** 6

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2 **A ladder leans against a wall. It rises 3 m for every 2 m it goes across. The gradient of the ladder is**

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

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3 **A sunflower grows 5 cm every week. The gradient of its height-time graph is**

- **A** 5
- **B** 6
- **C** 4
- **D** 10

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4 **A wooden footbridge rises 3 m over a run of 12 m. Its gradient is**

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

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5 **A bicycle path falls 2 m for every 3 m it goes across. The gradient of the path is**

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

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6 **A passenger aeroplane climbs 600 m for every 5000 m it travels forwards. The gradient of its flight path is**

- **A** $\frac{1}{10}$
- **B** $\frac{3}{25}$
- **C** $\frac{25}{3}$
- **D** $\frac{7}{50}$

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7 **The graph of y = f(x - 4) is the graph of y = f(x) moved**

- **A** 4 units right
- **B** 4 units to the left
- **C** 4 units up
- **D** 4 units down

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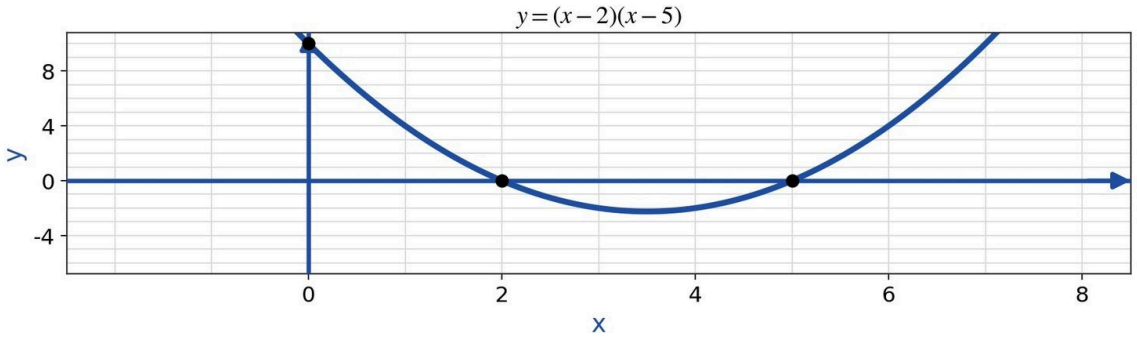
8 **The graph shows y = x² - 7x + 10. The roots of the equation x² - 7x + 10 = 0 are**



A x = 3 and x = 5

B x = 2 and x = 5

C x = -2 and x = -5

D x = 2 and x = -5

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9 The midpoint of the line joining (4, 2) and (8, 6) is

- A (4, 6)
- B (8, 2)
- C (2, 2)
- D (6, 4)

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10 A line is parallel to y = 4x + 3. The gradient of the parallel line is

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

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11 The circle $x^2 + y^2 = 25$ has radius

- A 5
- B 6
- C 25
- D 10

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12 The y-intercept of $y = -2x + 2$ is

- A -2
- B 0
- C 2
- D 3

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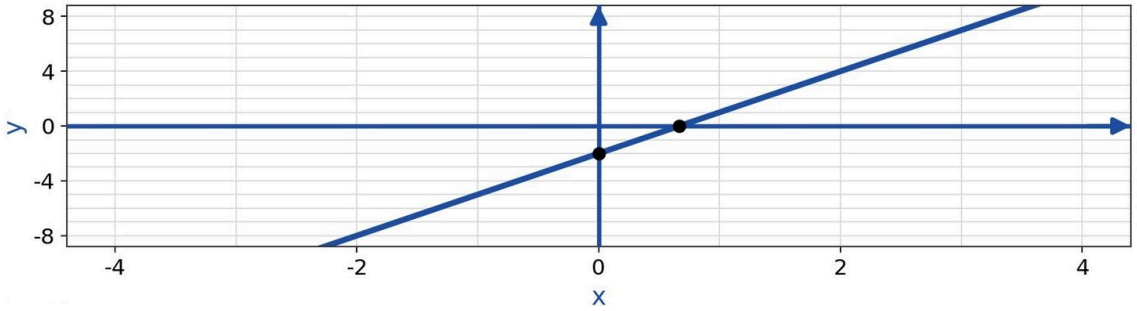
13 **The graph shows a straight line through (0, -2). The gradient of the line is**



A 4

B -3

C 3

D -2

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14 The graph of $y = \cos x$ crosses the y-axis at $y =$

- A 1
- B -1
- C 0
- D 90

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15 The turning point of $y = (x + 1)^2 + 5$ is

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

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16 **A line is perpendicular to y = 1/4x + 0. The gradient of the perpendicular line is**

A -1/4

B -4

C $\frac{1}{4}$

D 4

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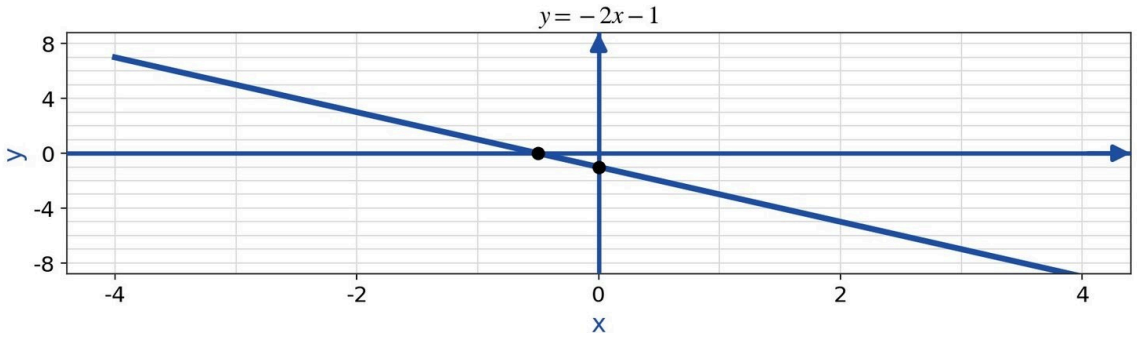
17 **The graph shows y = -2x - 1. The value of y when x = -2 is**



A 5

B 4

C 1

D 3

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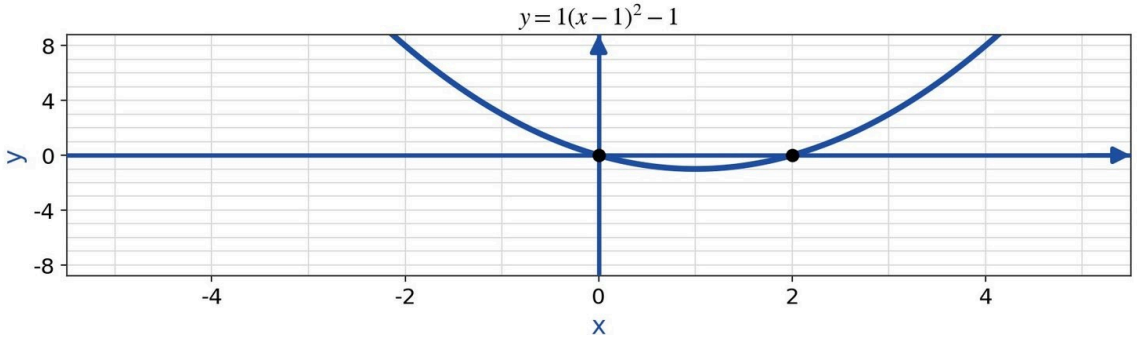
18 **The graph shows y = (x - 1)² - 1. The vertex of the graph is**



A (1, 1)

B (0, -2)

C (-1, -1)

D (1, -1)

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19 **For the equation y = 2x + 1, the value of y when x = 6 is**

- A 14
- B 11
- C 15
- D 13

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20 **The graph of y = f(x) + 3 is the graph of y = f(x) moved**

- A 3 units up
- B 3 units left
- C 3 units down
- D 3 units right

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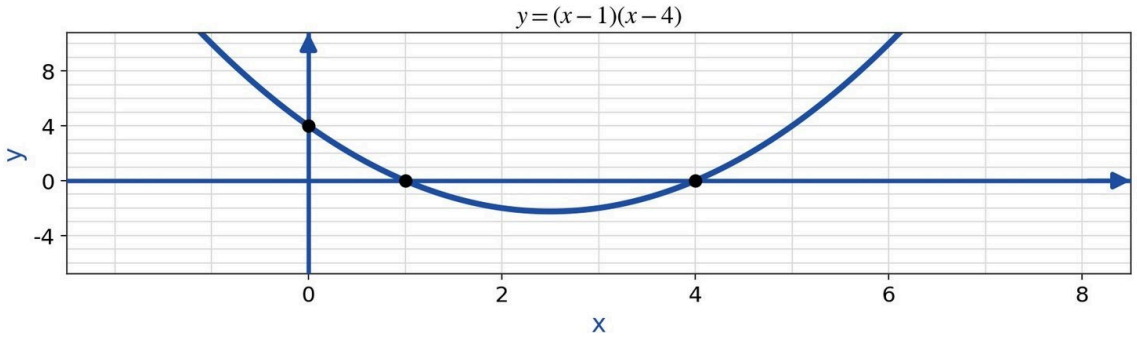
21 **The graph shows y = x² - 5x + 4. The roots of the equation x² - 5x + 4 = 0 are**



A x = 2 and x = 4

B x = 1 and x = 4

C x = 1 and x = -4

D x = -1 and x = -4

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22 The midpoint of the line joining (2, 1) and (6, 5) is

- A (2, 2)
- B (4, 3)
- C (6, 1)
- D (2, 5)

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23 A line is parallel to y = 3x - 1. The gradient of the parallel line is

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

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

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

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25 The gradient of the curve $y = x^2$ at the point where $x = 3$ is

- A 8
- B 4
- C 6
- D 9

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ANSWER KEY

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

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