ENGLAND GCSE MATHS OCR HIGHER · UNIT 3 · 25 QUESTIONS

Algebra, Notation, Vocabulary and Manipulation — 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 **Give your answer in its simplest form 3p + 5b + 3p - b, where p is the number of paintbrushes and b is the number of hardcover books.**

- A 6p
- B 6p + 4b
- C 6p + 6b
- D 4b

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2 **A sandwich costs s pounds. The cost, in pounds, of 5 sandwiches and a £2 drink is**

- A 5(s + 2)
- B 6s + 2
- C 5s + 2
- D 5s - 2

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3 **The height of a rocket, in metres, after t seconds is $h = 20t - 5t^2$. When t = 1, the height is**

- A 25
- B 10
- C 15
- D 20

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4 **A hardcover book costs b pounds. The cost, in pounds, of 5 hardcover books is**

A $5b^2$

B b^5

C $5b$

D $b + 5$

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5 **A tennis ball costs a pounds. The total cost, in pounds, of 6 tennis balls is**

A a^6

B $6a$

C $6a^2$

D $a + 6$

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6 **Give your answer in its simplest form 2a + 3b + 4a - b, where a is the number of red apples and b is the number of lemons.**

- A 6a + 2b
- B 6a
- C 6a + 4b
- D 2b

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7 **$(x^4)^2$ is equal to**

- A x^6
- B x^{16}
- C x^8
- D x^9

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8 **Write an expression for 4 more than 5 times a number x**

- **A** 4x + 5
- **B** 5x + 4
- **C** 5x × 4
- **D** 5x - 4

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9 **Expand $(x + 5)^2$**

- **A** $x^2 + 10x + 25$
- **B** $x^2 + 5x + 25$
- **C** $x^2 + 10x - 25$
- **D** $x^2 + 25$

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10 **Factorise $x^2 - 6x + 8$**

- A (x + 4)(x - 2)
- B (x - 4)(x + 2)
- C (x - 4)(x - 2)
- D (x + 4)(x + 2)

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11 **Expand 6(x + 2)**

- A 6x + 8
- B 6x + 12
- C 8x + 12
- D 6x + 2

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12 The inverse of $f(x) = x/5 + 3$ is

- A $f^{-1}(x) = x - 3/5$
- B $f^{-1}(x) = 5x + 3$
- C $f^{-1}(x) = 5(x + 3)$
- D $f^{-1}(x) = 5(x - 3)$

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13 Given $f(x) = x + 2$ and $g(x) = 4x$, the value of $(g \circ f)(5)$ is

- A 13
- B 28
- C 22
- D 18

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14 **Give your answer in its simplest form $x^2 - 36/x + 6$**

A x - 6

B x - 7

C x + 6

D x^2 - 6

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15 **Which statement is true for any whole number n?**

A n + 1 is always odd

B n^2 is always even

C $n^2 + n$ is always even

D $n^2 + n$ is always an odd number

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16 **Give your answer in its simplest form 4a + 6b - 4a + b**

A 7b

B 8a + 7b

C 5b

D 7a

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17 **Give your answer in its simplest form $\frac{8x}{8}$**

A x^2

B $\frac{x}{2}$

C x

D 2x

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18 **Factorise $10x^2 - 50x$**

- A $10x(x + 5)$
- B $2(x^2 - 5x)$
- C $10x(x - 5)$
- D $x(10x - 5)$

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19 **Expand $(x + 2)(x + 1)$**

- A $x^2 + 3x - 2$
- B $x^2 + x + 2$
- C $x^2 + 3x + 2$
- D $x^2 - 3x + 2$

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20 **If x = 5, the value of $4x^2 - 5$ is**

- A 15
- B 95
- C 105
- D 135

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21 **Write an expression for 3 more than 2 times a number x**

- A $3x + 2$
- B $2x - 3$
- C $2x + 3$
- D $2x \times 3$

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22 **Expand $(x + 4)^2$**

A $x^2 + 8x - 16$

B $x^2 + 4x + 16$

C $x^2 + 8x + 16$

D $x^2 + 16$

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23 **Factorise $x^2 - 2x - 8$**

A $(x - 4)(x + 2)$

B $(x + 4)(x + 2)$

C $(x - 4)(x - 2)$

D $(x + 4)(x - 2)$

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24 **Expand 5x(4x - 1)**

- A $20x^2 - x$
- B $9x^2 - 5x$
- C $20x^2 + 5x$
- D $20x^2 - 5x$

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25 **The inverse of f(x) = x/4 + 4 is**

- A $f^{-1}(x) = x - 4/4$
- B $f^{-1}(x) = 4x + 4$
- C $f^{-1}(x) = 4(x - 4)$
- D $f^{-1}(x) = 4(x + 4)$

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ANSWER KEY

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

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