CALIFORNIA ALGEBRA II · UNIT 1 · 25 QUESTIONS

# Functions and Polynomial Functions — 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** **If $f(x) = 2x^2 - 3x + 1$, then $f(3)$ is**

- A 4
- B 13
- C 10
- D 7

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**2** **If $g(x) = x^3 - 2x$, then $g(-2)$ is**

- A 4
- B -4
- C 8
- D -12

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**3** **The domain of $f(x) = \sqrt{3x - 12}$ is**

- A all real numbers
- B $x > 4$
- C $x \geq 4$
- D $x < 4$

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**4** The domain of $f(x) = \frac{1}{x - 5}$ is

- **A** $x \neq -5$
- **B** $x \neq 5$
- **C** $x \geq 5$
- **D** all real numbers

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**5** The range of $f(x) = x^2 + 4$ is

- **A** $y \leq 4$
- **B** $y \geq 4$
- **C** $y \geq 0$
- **D** $y > 4$

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6 **The vertex of $y = (x + 2)^2 - 3$ is**

A (2, -3)

B (2, 3)

C (-2, 3)

D (-2, -3)

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7 **The point (1, 5) lies on the graph of $y = f(x)$. The image of this point on the graph of $y = f(x + 2) - 1$ is**

A (3, 4)

B (-1, 6)

C (-1, 4)

D (3, 6)

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**8** **The inverse of f(x) = 3x - 7 is**

- **A** $f^{-1}(x) = \frac{x - 7}{3}$
- **B** $f^{-1}(x) = 3x + 7$
- **C** $f^{-1}(x) = \frac{x + 7}{3}$
- **D** $f^{-1}(x) = \frac{x}{3} - 7$

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**9** **Given $f(x) = x^2 + 1$ and $g(x) = 2x - 1$, the value of $(g \circ f)(2)$ is**

- **A** 25
- **B** 9
- **C** 7
- **D** 11

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**10** Given $f(x) = 3x + 2$ and $g(x) = x - 4$, the value of $(f \circ g)(3)$ is

- A 5
- B -1
- C -7
- D 11

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**11** Let $f(x) = -x$ for $x < 0$ and $f(x) = x^2 - 1$ for $x \geq 0$. The value of $f(-2) + f(2)$ is

- A 5
- B 7
- C -1
- D 1

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**12** The sum of the solutions of $|2x - 6| = 4$ is

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

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**13** The average rate of change of $f(x) = x^2 + 3x$ on the interval $0 \le x \le 3$ is

- A 12
- B 3
- C 6
- D 9

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**14** **Which statement about the relation {(1, 2), (1, 3), (4, 5)} is true?**

- A It is not a function because 2 has two outputs
- B It is not a function because 1 has two outputs
- C It is a function because it has three pairs
- D It is not a function because 4 has two outputs

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**15** **The graph below shows $y = x^2 - 9$. The vertex of the graph is**

- A (0, 3)
- B (-3, 0)
- C (3, 0)
- D (0, -9)

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**16** The smaller zero of $y = x^2 - 7x + 12$ is

- **A** 3
- **B** -3
- **C** 4
- **D** 12

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**17** A linear function passes through (1, 4) and (4, 13). Its slope is

- **A** $\frac{1}{3}$
- **B** 2
- **C** 3
- **D** 9

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**18** **The function $f(x) = x^4 - 3x^2$ is**

- A odd
- B both even and odd
- C neither even nor odd
- D even

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**19** **The point (2, 9) lies on the graph of y = f(x). The corresponding point on the graph of the inverse $y = f^{-1}(x)$ is**

- A (2, 9)
- B (-9, 2)
- C (9, -2)
- D (9, 2)

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**20** **Compared to the graph of y = f(x), the graph of y = 2f(x - 3) has been**

A Stretched horizontally by 2, shifted right 3

B Stretched by 2, shifted left 3

C Compressed by 2, shifted right 3

D Stretched by 2, shifted right 3

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**21** **If $f(x) = 4x^2 - 3$, then f(3) is**

ANSWER _____

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**22** **The factored form of $x^2 - 5x + 6$ is**

- A $(x - 2)(x + 3)$
- B $(x + 2)(x - 3)$
- C $(x - 2)(x - 3)$
- D $(x + 2)(x + 3)$

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**23** **For $y = -2x^3 + x$, as x decreases without bound, y increases without bound, and as x increases without bound, y decreases without bound. This is**

- A rising on both ends
- B falling on both ends
- C rising on the left and falling on the right
- D falling on the left and rising on the right

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**24** The remainder when $x^3 - 3x^2 + 2$ is divided by $x - 2$ is

- A -2
- B 10
- C 2
- D -10

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**25** The sum of the zeros of $x^2 + 6x + 5$ is

ANSWER _____

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# ANSWER KEY

1. C
2. B
3. C
4. B
5. B
6. D
7. C
8. C
9. B
10. B
11. A
12. A
13. C
14. B
15. D
16. A
17. C
18. D
19. D
20. D
21. 33
22. C
23. C
24. A
25. -6

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