CALIFORNIA PRECALCULUS · UNIT 1 · 25 QUESTIONS

Functions, Graphs, and Transformations — 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 $f(x) = 2x^3 - 5x + 1$, then $f(2)$ is**

- A 7
- B 3
- C 17
- D 11

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2 **If f(x) = x + 2 and g(x) = 3x, then (f ° g)(x) is**

- **A** 3x + 6
- **B** 3x + 2
- **C** x + 6
- **D** 3x - 2

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3 **If f(x) = 2x - 1 and g(x) = x^2, then (g ° f)(x) is**

- **A** $4x^2 - 1$
- **B** $2x^2 - 1$
- **C** $2x - 1 + x^2$
- **D** $(2x - 1)^2$

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4 **The inverse of f(x) = 5x - 2 is**

A $f^{-1}(x) = \frac{x}{5} - 2$

B $f^{-1}(x) = 5x + 2$

C $f^{-1}(x) = \frac{x + 2}{5}$

D $f^{-1}(x) = \frac{x - 2}{5}$

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5 **The inverse of f(x) = $\frac{x}{4}$ + 3 is**

A $f^{-1}(x) = \frac{x - 3}{4}$

B $f^{-1}(x) = 4x + 12$

C $f^{-1}(x) = 4x - 12$

D $f^{-1}(x) = 4x + 3$

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6 The domain of $f(x) = \sqrt{2x + 6}$ is

- **A** $x > -3$
- **B** $x \geq -3$
- **C** $x \geq 3$
- **D** all real numbers

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7 The domain of $f(x) = \frac{1}{x^2 - 9}$ is

- **A** $x \neq 3$ and $x \neq -3$
- **B** $x \neq 3$
- **C** $x \neq -3$
- **D** $x \neq 9$

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8 **The range of $f(x) = -2(x - 1)^2 + 5$ is**

A $y \geq -2$

B $y > 5$

C $y \geq 5$

D $y \leq 5$

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9 **The vertex of $y = -3(x + 2)^2 + 1$ is**

A (2, 1)

B (-2, -1)

C (-2, 1)

D (2, -1)

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10 **The point (3, -2) lies on the graph of y = f(x). The image of this point on the graph of y = -f(x) + 4 is**

- A (3, -6)
- B (3, 2)
- C (3, 6)
- D (-3, 6)

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11 **The point (3, -2) lies on the graph of y = f(x). The image of this point on the graph of y = f(x - 2) is**

- A (5, 0)
- B (5, -2)
- C (1, -2)
- D (3, -4)

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12 **Compared with y = f(x), the graph of y = f(3x) is**

- **A** shifted right by 3
- **B** stretched vertically by 3
- **C** stretched horizontally by 3
- **D** compressed horizontally by $\frac{1}{3}$

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13 **Compared with y = f(x), the graph of y = 2f(x) is**

- **A** shifted up by 2
- **B** compressed vertically by $\frac{1}{2}$
- **C** stretched horizontally by 2
- **D** stretched vertically by 2

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14 **The function $f(x) = x^5 - 3x$ is**

A neither even nor odd

B even

C odd

D both even and odd

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15 **The function $f(x) = x^2 + 2x$ is**

A odd

B both even and odd

C even

D neither even nor odd

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16 **Let f(x) = x + 1 for x < 2 and f(x) = 2x - 1 for x ≥ 2. The value of f(1) + f(3) is**

- A 7
- B 6
- C 5
- D 9

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17 **The average rate of change of f(x) = x³ on the interval 1 ≤ x ≤ 2 is**

- A 8
- B 7
- C 5
- D 3

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18 The y-intercept of the line $y = 3x - 4$ is

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

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19 Which function is one to one?

- **A** $f(x) = |x|$
- **B** $f(x) = x^2$
- **C** $f(x) = x^3 + 1$
- **D** $f(x) = 4$

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20 **The graph below shows y = |x - 2|. The vertex of the graph is**

A (2, 0)

B (0, -2)

C (-2, 0)

D (0, 2)

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21 **If f(x) = x² - 3x, then f(-2) is**

ANSWER _____

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22 Given $f(x) = x^2$ and $g(x) = x + 5$, the value of $(f \circ g)(3)$ is

- A 9
- B 14
- C 64
- D 34

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

- A $x \neq 4$
- B $x \geq 1$ and $x \neq 4$
- C $x > 1$
- D $x \geq 1$

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24 **The graph of $y = x^2$ shifted right 3 and down 2 is**

- **A** $y = (x - 3)^2 - 2$
- **B** $y = (x - 3)^2 + 2$
- **C** $y = x^2 - 5$
- **D** $y = (x + 3)^2 - 2$

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25 **If $f(x) = 2x + 6$, then $f^{-1}(10)$ is**

ANSWER _____

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ANSWER KEY

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

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