MASSACHUSETTS PRECALCULUS · UNIT 1 · 25 QUESTIONS

Functions 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 $f(x) = x^2 + 3x - 4$, then $f(2)$ is**

- A 6
- B -2
- C 10
- D 2

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2 **If g(x) = 2x - 5, then g(-3) is**

- A 11
- B -11
- C -1
- D 1

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3 **If f(x) = x + 4 and g(x) = 2x, then f(g(3)) is**

- A 6
- B 7
- C 10
- D 14

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4 If $f(x) = 3x + 1$ and $g(x) = x^2$, then $g(f(2))$ is

- A 49
- B 13
- C 36
- D 19

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5 The domain of $f(x) = \sqrt{x - 5}$ is

- A $x \geq 5$
- B $x > 5$
- C $x \leq 5$
- D all real numbers

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6 **The domain of f(x) = 1/x - 4 is**

- **A** all real numbers
- **B** $x \neq 4$
- **C** $x \geq 4$
- **D** $x \neq -4$

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7 **The range of f(x) = x^2 + 2 is**

- **A** $y \geq 0$
- **B** $y > 2$
- **C** $y \geq 2$
- **D** $y \leq 2$

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8 **The inverse of f(x) = 2x + 6 is**

- **A** $f^{-1}(x) = x - 6/2$
- **B** $f^{-1}(x) = x + 6/2$
- **C** $f^{-1}(x) = 2x - 6$
- **D** $f^{-1}(x) = x/2 + 6$

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9 **The inverse of f(x) = x/3 - 2 is**

- **A** $f^{-1}(x) = 3x - 2$
- **B** $f^{-1}(x) = x/3 + 2$
- **C** $f^{-1}(x) = 3x + 6$
- **D** $f^{-1}(x) = 3x - 6$

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

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

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11 **The function $f(x) = x^2 + 5$ is**

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

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12 **The graph of $y = (x - 3)^2 + 1$ has vertex**

- **A** (3, 1)
- **B** (-3, 1)
- **C** (3, -1)
- **D** (-3, -1)

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13 **Compared with $y = x^2$, the graph of $y = -2x^2$ is reflected across the x-axis and**

- **A** stretched vertically by a factor of 2
- **B** compressed vertically by a factor of 2
- **C** shifted up 2 units
- **D** shifted right 2 units

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14 **The graph of y = f(x - 4) + 3 is the graph of y = f(x) shifted**

- **A** 4 units left and 3 units down
- **B** 4 units right and 3 units up
- **C** 3 units right and 4 units up
- **D** 4 units left and 3 units up

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15 **The graph of y = f(-x) is the graph of y = f(x) reflected across the**

- **A** x-axis
- **B** line y = x
- **C** y-axis
- **D** origin

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16 **If $f(x) = x^2$ and $g(x) = f(x + 2)$, then $g(-1)$ is**

A 9

B 4

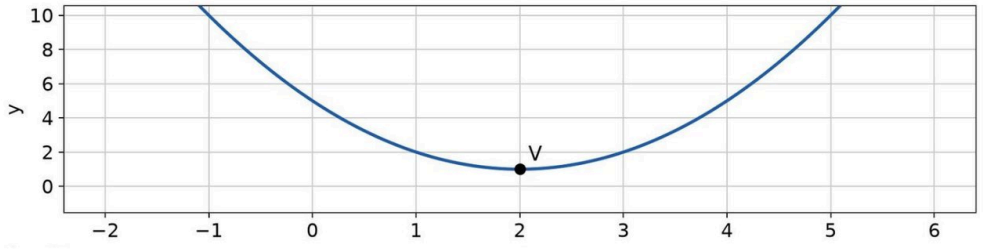
C 1

D 3

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17 **The graph shows the parabola $y = (x - 2)^2 + 1$. The vertex is**

17 **The graph shows the parabola $y = (x - 2)^2 + 1$. The vertex is**



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

A (2, 1)

B (-2, 1)

C (2, -1)

D (1, 2)

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18 **If $f(3) = 7$ and f is one to one, then $f^{-1}(7)$ is ____.**

ANSWER _____

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19 **If $f(x) = 4x - 3$, then the value of x for which $f(x) = 13$ is ____.**

ANSWER _____

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20 **For $f(x) = x^2 - 1$ and $g(x) = 2x + 3$, the value of $(f + g)(2)$ is ____.**

ANSWER _____

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21 **The x-intercept of f(x) = 3x - 12 is**

A -4

B 12

C -12

D 4

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22 **The y-intercept of f(x) = -2x + 9 is**

A -2

B 2

C -9

D 9

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23 **Which function is increasing on its entire domain?**

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

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24 **A function passes the horizontal line test if it is**

- A even
- B one to one
- C quadratic
- D periodic

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25 **If f(x) = x + 1/x - 2, then f(5) is**

A 2

B $\frac{6}{7}$

C 6

D $\frac{4}{3}$

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ANSWER KEY

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

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