ALASKA ALGEBRA II · UNIT 1 · 25 QUESTIONS

# Functions and 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** **If f(x) = 4x - 3, then f(5) is**

- A 17
- B 18
- C 15
- D 20

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**2** **If g(x) = x² + 2x - 1, then g(-2) is**

- A 1
- B -1
- C 3
- D 7

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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 $f(x) = 1/x - 5$ is**

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

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**5** **The range of $f(x) = x^2 + 6$ is**

- **A** $y \leq 6$
- **B** $y \geq 6$
- **C** $y > 6$
- **D** $y \geq -6$

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**6** **The vertex of $y = (x + 4)^2 - 7$ is**

- **A** (4, -7)
- **B** (-4, 7)
- **C** (-4, -7)
- **D** (4, 7)

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**7** **The point (-3, 8) lies on the graph of y = f(x). The image of this point on the graph of y = f(x + 2) - 3 is**

- **A** (-1, 5)
- **B** (-5, 11)
- **C** (-5, 5)
- **D** (-1, 11)

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

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

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9 **Given f(x) = 3x - 1 and g(x) = x² + 1, the value of (f ° g)(2) is**

A 11

B 14

C 17

D 8

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10 **Given f(x) = x + 4 and g(x) = 2x - 3, the value of (g ° f)(1) is**

A 5

B 9

C 3

D 7

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**11** Let $f(x) = 3x$ for $x < 1$ and $f(x) = x^2 + 2$ for $x \geq 1$. The value of $f(-1) + f(2)$ is

- A 9
- B 1
- C 6
- D 3

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**12** The sum of the solutions of $|x + 3| = 5$ is

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

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

- **A** 5
- **B** 6
- **C** 9
- **D** 3

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

- **A** It is a function because it has three pairs
- **B** It is a function because every output is different
- **C** It is not a function because 5 has two outputs
- **D** It is not a function because 4 has two outputs

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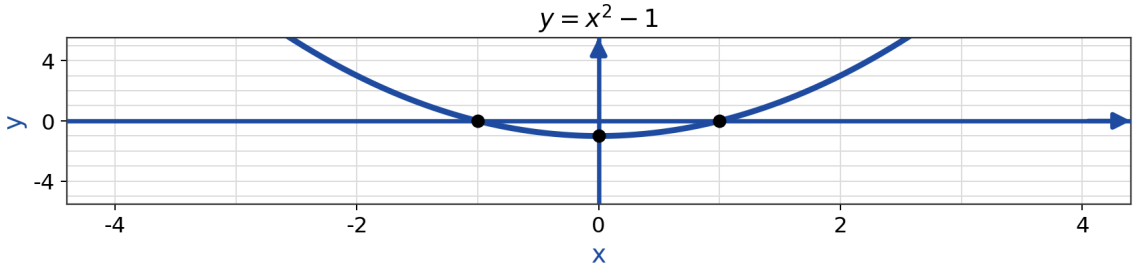
**15** **The graph below shows $y = x^2 - 1$. The vertex of the graph is**




- **A** (1, 0)
- **B** (0, 1)
- **C** (0, -1)
- **D** (-1, 0)

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**16** **The x-intercept of y = 3x + 9 is**

- **A** 3
- **B** 9
- **C** -9
- **D** -3

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**17** **A linear function passes through (1, 4) and (4, 10). Its slope is**

- **A** 3
- **B** 2
- **C** $\frac{1}{2}$
- **D** 6

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

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

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**19** **The point (5, 3) lies on the graph of y = f(x). The corresponding point on the graph of the inverse, $y = f^{-1}(x)$, is**

- A (-3, 5)
- B (3, 5)
- C (5, 3)
- D (-5, 3)

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**20** **Compared to the graph of y = f(x), the graph of y = 2f(x - 1) has been**

- A vertically stretched by a factor of 2 and shifted right 1 unit
- B vertically stretched by a factor of 2 and shifted left 1 unit
- C vertically compressed by a factor of 2 and shifted right 1 unit
- D horizontally stretched by a factor of 2 and shifted right 1 unit

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21 If $f(x) = x^2 - 5$, then the positive solution of $f(x) = 11$ is

ANSWER _____

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22 If $f(x) = \frac{2x + 1}{x - 3}$, then $f(2)$ is

A 5

B -5

C $\frac{1}{5}$

D $-\frac{1}{5}$

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**23** The smaller zero of $y = x^2 + 3x - 10$ is

A -5

B 2

C 5

D -2

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**24** The domain of $y = f(x)$ is $1 \leq x \leq 5$. The domain of $y = f(x - 3)$ is

A $4 \leq x \leq 8$

B $-2 \leq x \leq 2$

C $1 \leq x \leq 5$

D $-3 \leq x \leq 1$

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

ANSWER

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# ANSWER KEY

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

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