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CHAPTER 5

Chapter Test

Form A

Select the best answer.

1. Using $f(x) = x^2$ as a guide, describe the transformation that yields $f(x) = 7(x + 3)^2 - 1$.

A compress by a factor of $\frac{1}{7}$, 3 units left, 1 unit down

B stretch by a factor of $\frac{1}{7}$, 3 units right, 1 unit down

C stretch by a factor of 7, 3 units left, 1 unit down

2. If the parent function $f(x) = x^2$ is vertically stretched by a factor of 3, translated 2 units to the right, then translated 5 units up, write the resulting function $g(x)$ in vertex form.

A $g(x) = 3(x - 2)^2 + 5$

B $g(x) = 3(x + 2)^2 + 5$

3. Consider $h(x) = 2x^2 - 8x - 10$. Identify its vertex and y-intercept.

A $\left(-\frac{5}{2}, 0\right)$; $(2, -18)$

B $(2, -18)$; $(0, -10)$

C $(2, -18)$; $(0, -5)$

4. Find the minimum or maximum of $g(x) = -x^2 - 2x + 8$.

A maximum of $(0, 8)$

B minimum of $(-1, 9)$

5. Find all zeros of the trinomial $k(x) = x^2 - 2x - 24$.

A $(-6, 0)$, $(4, 0)$

B $(-4, 0)$, $(6, 0)$

C $(0, -4)$, $(0, 6)$

6. Solve $81x^2 = 1$.

A $x = \pm\frac{1}{9}$

B $x = \pm 9$

7. Write a quadratic function in standard form having zeros of -5 and 1.

A $h(x) = x^2 - 4x - 5$

B $h(x) = x^2 - 4x - 4$

C $h(x) = x^2 + 4x - 5$

8. Identify the vertex of $g(x) = (x + 10)^2 + 2$.

A $(-10, -2)$

B $(-10, 2)$

9. Complete the square to write $c(x) = x^2 + 6x + 14$ in vertex form.

A $c(x) = (x + 3)^2 + 5$

B $c(x) = (x + 3)^2 + 14$

C $c(x) = (x + 3)^2 + 23$

10. Simplify $i\sqrt{-45}$.

A $-3\sqrt{5}$

B $-3i\sqrt{5}$

11. Solve $36x^2 + 25 = 0$.

A $-6 \pm 5i$

B $\pm\frac{6}{5}i$

C $\pm\frac{5}{6}i$

12. Use the Quadratic Formula to solve $x^2 + 4x + 6 = 0$.

A $-4 \pm 2i\sqrt{2}$

B $-2 \pm i\sqrt{2}$

13. For the discriminant $\sqrt{(7)^2 - 4 \cdot 5 \cdot 3}$, identify the number of solutions and their type(s).

A 2 complex solutions

B 1 real and 1 complex solution

C 2 real solutions

14. Solve $x^2 - 2x - 8 > 7$.

A $-3 < x < 5$

B $x < -3$ or $x > 5$

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CHAPTER 5

Chapter Test

Form A continued

15. Solve $3x^2 + 4x - 7 < 13$.

A $-\frac{10}{3} < x < 2$

B $-1 < x < \frac{7}{3}$

C $x < -\frac{10}{3}$ or $x > 2$

16. Write a quadratic equation that fits the points $(0, -5)$, $(1, 3)$, and $(5, -5)$.

A $f(x) = -2x^2 + 10x - 5$

B $f(x) = -1.5x^2 + 9.5x - 5$

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

17. Selena is standing on a rock cliff that is 52 feet high. She tosses a pebble upward over the edge, where it hits the top of a 12-foot-high boulder. The quadratic equation that models the path of the pebble is $p(t) = -16t^2 + 12t + 52$. How long did it take for the pebble to hit the top of the boulder?

A 1.25 seconds

B 1.50 seconds

C 2.00 seconds

18. Simplify $\frac{12 + 8i}{2i}$.

A $4 - 6i$ **B** $6 - 4i$

19. Simplify $(9 - 2i)(3 + i)$.

A $25 + 3i$

B $27 + i$

C $29 + 3i$

20. Simplify $|-11 + i|$.

A $11 + i$ **B** $\sqrt{122}$

CHAPTER 5

Chapter Test Form A: Multiple Choice

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