NAME _____ DATE _____ PERIOD _____

Chapter 9 Test, Form 1

SCORE _____

Write the letter for the correct answer in the blank at the right of each question.

1. Consider the equation $y = x^2 + 3x - 4$. Determine whether the function has a maximum or minimum value. State the maximum or minimum value. What are the domain and range of the function?

A min.; 0
D: {all real numbers}
R: {all real numbers}

B max.; 0
D: {all real numbers}
R: $\{y \mid y \leq 0\}$

C max.; –6.25
D: $\{x \mid x \leq -1.5\}$
R: $\{y \mid y \geq -6.25\}$

D min.; –6.25
D: {all real numbers}
R: $\{y \mid y \geq -6.25\}$

1. D

2. What is the equation of the axis of symmetry of the graph of $y = x^2 + 6x - 7$?

F $x = 6$ **G** $x = -3$ **H** $x = 3$ **J** $x = -6$

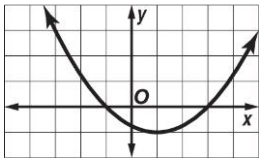
2. G

3. Find the coordinates of the vertex of the graph of $y = 4 - x^2$. Identify the vertex as a maximum or a minimum point.

A (2, 0); maximum
B (0, 4); minimum
C (0, 4); maximum
D (2, 0); minimum

3. C

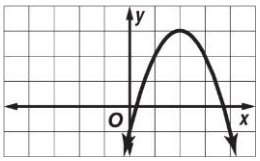
4. Which appear to be the roots of the quadratic equation whose related function is graphed at the right?



F –1, 3
G –1, 1
H –3, 1
J 1, 3

4. F

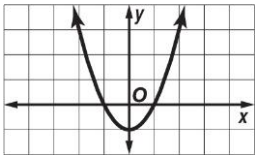
5. One root of the quadratic equation whose related function is graphed lies between which two consecutive integers?



A 1 and 2
B 2 and 3
C 0 and –1
D 0 and 1

5. D

6. Which equation corresponds to the graph shown?



F $y = x^2 + 1$
G $y = -x^2 - 1$
H $y = x^2 - 1$
J $y = x^2$

6. H

7. Describe how the graph of the function $g(x) = -3x^2 - 2$ is related to the graph of the function $f(x) = -3x^2$.

A translation of $f(x) = -3x^2$ reflected over the x-axis and down 2 units
B translation of $f(x) = -3x^2$ down 2 units
C translation of $f(x) = -3x^2$ reflected over the x-axis and up 2 units
D translation of $f(x) = -3x^2$ up 2 units

7. B

8. Find the value of c that makes $x^2 - 5x + c$ a perfect square trinomial.

F –12.25 **G** –6.25 **H** 6.25 **J** 10

8. H

NAME _____ DATE _____ PERIOD _____

Chapter 9 Test, Form 1 *(continued)*

9. Which value of c makes $y^2 + 8y + c$ a perfect square trinomial?
A 4 **B** 16 **C** 64 **D** 8 **9.** B

10. Which equation is equivalent to $x^2 + 2x - 3 = 0$?
F $(x + 1)^2 = 2$ **G** $(x - 1)^2 = 4$ **H** $(x - 1)^2 = 2$ **J** $(x + 1)^2 = 4$ **10.** J

11. Solve the equation $2x^2 + 3x - 5 = 0$ by using the Quadratic Formula.
A $-2\frac{1}{2}, 1$ **B** $-5, 1$ **C** $-1, 2\frac{1}{2}$ **D** $-1, 5$ **11.** A

12. State the value of the discriminant for $y = x^2 - 8x + 10$.
F 4.9 **G** 24 **H** 104 **J** 10.2 **12.** G

13. Determine the number of real solutions of $n^2 - 5n - 6 = 0$.
A 1 real solution
B 2 real solutions
C infinitely many real solutions
D no real solutions
13. B

14. TREE HOUSE Bob tosses his basketball onto the ground from his tree house. He tosses the basketball with an initial downward velocity of 8 feet per second. The equation $h = -16t^2 - 8t + 20$ represents the height h of the basketball after t seconds. How long does the basketball take to hit the ground?
F 0.9 s **G** 1.0 s **H** 9 s **J** 20 s **14.** F

15. State the value of the discriminant of $5x^2 + 9x = 3$
A 5 **B** 12 **C** 21 **D** 141 **15.** D

16. Look for a pattern in the table of values to determine which model best describes the data.

x	0	1	2	3
y	0	2	8	18

F linear **G** quadratic **H** exponential **J** none of these **16.** G

17. Which function best models the data in Question 16?
A $y = 2x$ **B** $2x + 1$ **C** $y = 2x^2$ **D** $y = 2^x$ **17.** C

18. What is the domain of $f(x) = \begin{cases} x + 3 & \text{if } x < 0 \\ -2x + 1 & \text{if } x \geq 0 \end{cases}$?
F {all real num.} **G** $\{x \mid x \geq 3\}$ **H** $\{x \mid x < 2\}$ **J** $\left\{x \mid x \leq \frac{1}{2}\right\}$ **18.** F

19. If $f(x) = 2[\![x]\!]$, find $f\left(-\frac{1}{4}\right)$.
A -2 **B** $-\frac{1}{2}$ **C** 0 **D** $\frac{1}{2}$ **19.** A

20. What is the range of $y = |3x + 1|$?
F {all real num.} **G** $\{y \mid y \geq 0\}$ **H** $\{y \mid y \geq 1\}$ **J** $\left\{y \mid y \geq \frac{1}{3}\right\}$ **20.** G

Bonus If $b^2 - 4ac = 0$, determine the number of real solutions of the equation $ax^2 + bx + c = 0$.
B. 1 real solution