

Math 3 Advanced

Unit 3 Quiz

1. Simplify the following radical.

$$\sqrt{48}$$

- a) $3\sqrt{8}$ b) $8\sqrt{3}$ c) $4\sqrt{3}$ d) $\sqrt{48}$

2. Simplify the following radical.

$$\sqrt{30}$$

- a) $3\sqrt{10}$ b) $2\sqrt{15}$ c) $3\sqrt{5}$ d) $\sqrt{30}$

3. Calculate the discriminant of the following quadratic function.

$$y = x^2 + 5x - 8$$

- a) 17 b) 33 c) 57 d) -7

4. Determine the solutions to the following quadratic equation.

$$x^2 - 6x - 10 = 0$$

- a) $-3 \pm \sqrt{19}$ b) $3 \pm \sqrt{19}$
 c) $3 \pm i$ d) $-3 \pm i$

5. How many solutions are there to the following system of equations?

$$y = x^2 - 4$$

$$y = 2x + 5$$

- a) three b) two c) one d) none

6. What is the range of the following exponential function?

$$y = 2(3)^{x+5} - 9$$

- a) $(-\infty, -9)$ b) $(-9, \infty)$
 c) $(-2, \infty)$ d) $(-, -2)$

7. What is NOT a graphical transformation of the following exponential function?

$$y = 3(2)^{x-4} + 7$$

- a) vertical shift b) horizontal shift
 c) vertical stretch d) horizontal stretch

8. Which mathematical model for population BEST describes this situation: A town of 900 people decreases population of fifteen percent per year.

- a) $A(t) = 900(1.15)^t$ b) $A(t) = 900(0.15)^t$
 c) $A(t) = 900(15)^t$ d) $A(t) = 900(0.85)^t$

9. $\triangle ABC$ is isosceles with base angles of $\angle B$ and $\angle C$. If $AB = 9$, what is the length of \overline{BC} ?

- a) cannot be determined
 b) $\frac{9}{2}$
 c) 18
 d) 9

10. $\triangle XYZ$ is isosceles. If the measure of a base angle is 40° , what is the measure of the vertex angle?

- a) 50° b) 10° c) 70° d) 100°