

ALGEBRA II SOL PRACTICE TEST
STRAND 2: Equations and Inequalities

1. What value of b would make the following system have two solutions?

$$\begin{cases} y = x^2 - 4x + 7 \\ y = \frac{1}{2}x + b \end{cases}$$

- A) $b = -3$ B) $b = 0$ C) $b = 2$ D) $b = 5$

2. For a model rocket the altitude, h (in meters), is a function of time, t (in seconds), is given by the function $h = 68t - 8t^2$. When will the rocket reach the highest point?

- A) .06 sec B) 4.25 sec C) 144.5 sec D) 8.5 sec

3. Solve $\sqrt{17-x} - 3 = x$

- A) $\{1, -8\}$ B) $\{-8\}$ C) $\{1\}$ D) $\{ \}$

4. Which is the solution to the following equation? $\frac{1}{x} - \frac{1}{2} = \frac{1}{2x}$

- A) 1 B) $\frac{1}{2}$ C) $-\frac{1}{2}$ D) -1

5. Given $y = x^2 + bx + 6$, what does b need to be to have a at least one real root?

- A) -2 B) -5 C) 4 D) 0

6. Which is a simplified form of the following expression? $\frac{1}{x} + \frac{1}{2x} + \frac{1}{3x}$

- A) $\frac{1}{x}$ B) $\frac{1}{2x}$ C) $\frac{1}{6x}$ D) $\frac{11}{6x}$

7. Solve for t : $16|3t - 4| = 64$.

- A) $\left\{-\frac{8}{3}, 0\right\}$ B) $\left\{\frac{4}{3}, \frac{8}{3}\right\}$ C) $\left\{\frac{4}{3}, \frac{16}{3}\right\}$ D) $\left\{0, \frac{8}{3}\right\}$

8. Choose all of the possible solutions to the following inequality, from the choices given:

$$y > -2(x-1)^2 + 2$$

(0, 0)	(3, 4)	(3, -2)
(-1, 0)	(-3, 2)	(1, 0)

Directions: Circle the box of each expression you want to select. You must select all correct expressions.

9. Which set represents all solutions to the system? (Domain or Range coordinate)

$$\begin{cases} 2x^2 - y = 5 \\ 2x - y = 1 \end{cases}$$

A) $\left\{ (0, -1), \left(\frac{3}{2}, 2\right) \right\}$

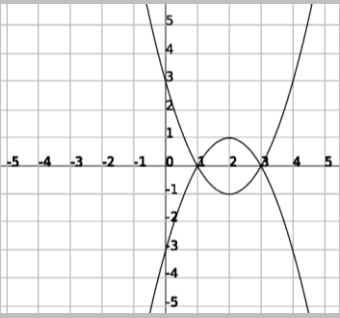
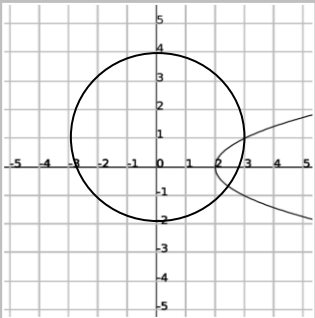
B) $\{(-1, -3), (2, 3)\}$

C) $\{(\sqrt{2}, -1), (-\sqrt{2}, -1)\}$

D) $\{(-3, -1), (3, 2)\}$

10. For which of the following systems is (3, 1) a solution?

Directions: Circle the box of each expression you want to select. You must select all correct expressions.

$\begin{cases} y = 2x^2 - 4x + 5 \\ y = -x^2 + 4x + 1 \end{cases}$	$\begin{cases} y = x^2 + 2 \\ y = 2x + 1 \end{cases}$		
$\begin{cases} y^2 - x = -2 \\ x^2 + y^2 = 10 \end{cases}$	$\begin{cases} x^2 + y^2 = 10 \\ y = 3x \end{cases}$		

11. The width of a rectangular garden is 8 feet shorter than the length. If the area of the garden is 240 ft², what is the width of the garden?



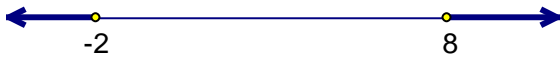

A) 4 ft

B) 8 ft

C) 12 ft

D) 20 ft

12. Match the correct graph to the absolute value inequality: More Selections

Graph	Absolute value
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$|x-3| \leq 5$

$|x-3| \geq 5$

$|x-3| = 5$

$|x-3| < 5$

$|x-3| > 5$

$|x-3| < -5$

13. Which statement is true about the graph of the following system?

$$\begin{cases} 2x^2 + 14x + 24 - 2y = 0 \\ y = (x+4)(x+3) \end{cases}$$

- | | |
|---------------------------------|---|
| A) The system has no solution | B) The system has one solution |
| C) The system has two solutions | D) There are infinitely many solutions. |