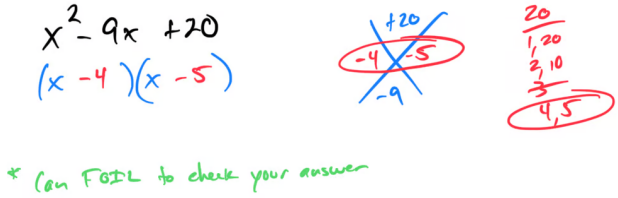
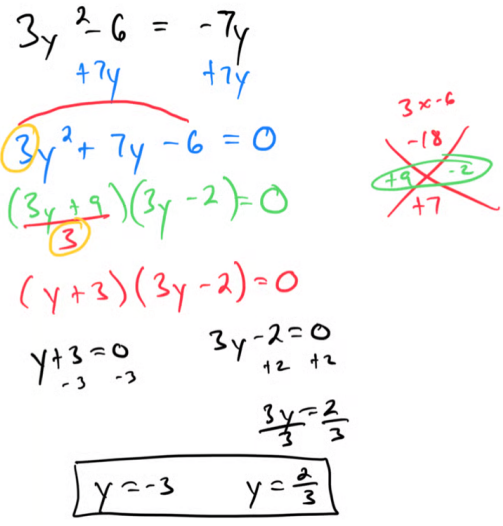
# College Algebra /
# Module 8 - Linear and Quadratics Exam Review


**Topic 1: Factoring a quadratic with leading coefficient 1**




**Topic 2: Finding the roots of a quadratic equation with leading coefficient greater than 1**




**Topic 3: Solving a quadratic equation using the square root property: Exact answers, advanced**

On Test Work Page (below).

**Topic 4: Applying the quadratic formula: Exact answers**

On Test Work Page (below).

**Topic 5: Solving a compound linear inequality: Interval notation**

$2x-3 \leq -9$ (+3, +3) and $3x+3 < 6$ (−3, −3)

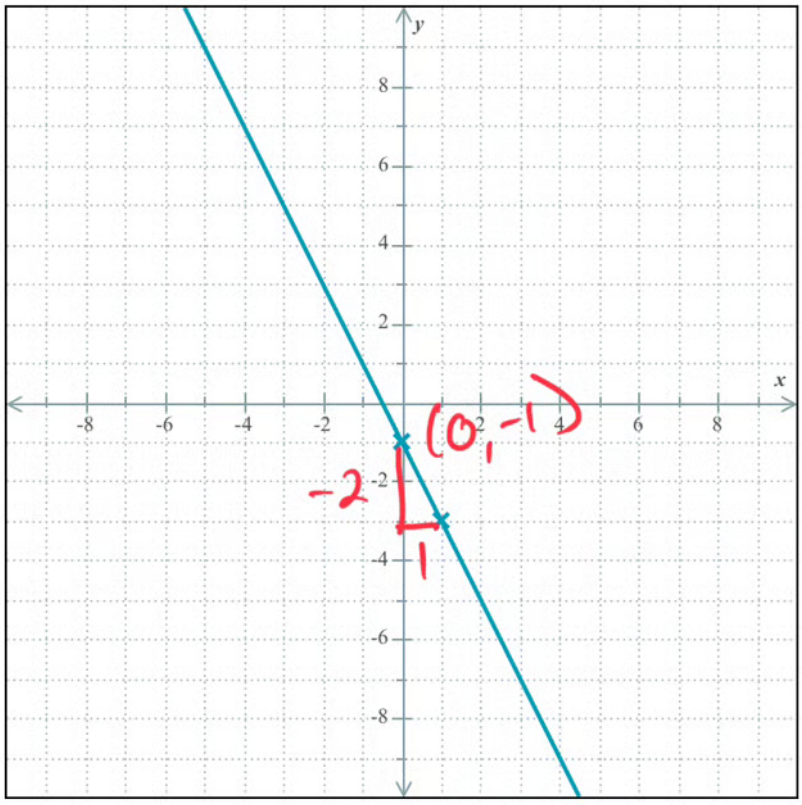
$\frac{2x}{2} \leq \frac{-6}{2}$ $\qquad$ $\frac{3x}{3} < \frac{3}{3}$

$x \leq -3$ and $x < 1$

Answer on Test Work Page (below).

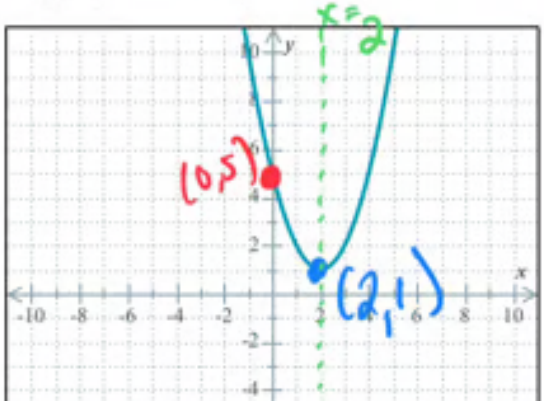
**Topic 6: Graphing a function of the form f(x) = ax + b: Integer slope**

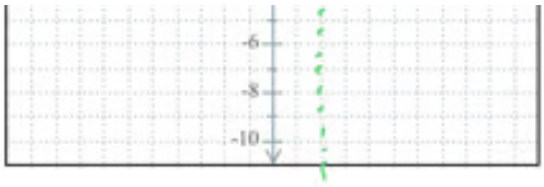
Graph the function $h(x) = -2x - 1$.




**Topic 7: Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola**

: the graph of the parabola to fill in the table.





(a) Does the parabola open upward or downward?

∪ ∩

● upward ○ downward

(b) Find the coordinates of the vertex.

vertex: (2, 1)

(c) Find the equation of the axis of symmetry.

x value of the vertex

equation of axis of symmetry: x = 2

(d) Find the intercept(s).

For both the $x$- and $y$-intercept(s), make sure to do the following.

- If there is more than one, separate them with commas.
- If there are none, select "None".

$x$-intercept(s): None

$y$-intercept(s): 5

**Topic 8: Graphing a parabola of the form $y = a(x-h)^2 + k$**

$y = 3(x-2)^2 - 7$

$a = 3$ opens up (a is positive)

Vertex $(2, -7)$

| x | y |
|---|---|
| 1 | -4 |
| 0 | 5 |

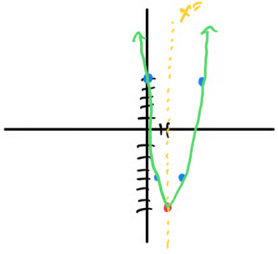
y-intercept

$x=1$: $y = 3(1-2)^2 - 7$, $3 - 7$, $y = -4$

$x=0$: $3(0-2)^2 - 7$, $3(-2)^2 - 7$, $3(4) - 7$, $12 - 7$, $5$

$y = a(x-h)^2 + k$

$(h, k)$ Vertex



Answer on Test Work Page (below).

**Topic 9: Solving a system of linear equations using elimination with multiplication and addition**

On Test Work Page (below).

**Topic 10: Graphing a system of two linear inequalities: Basic**