Quadratic Functions & Complex Numbers Maze

Name _____ Period _____

Start in the top-left room. Solve each problem. Go through the door that shows your answer. Show your work on the answer grid.

START

Find the vertex of $y = 2x^2 - 12x + 7$.

(3, −11)

Solve by completing the square.

$x^2 - 8x + 3 = 0$

$x = 4 \pm \sqrt{3}$

For which values of k does $x^2 + kx + 9 = 0$ have exactly one real solution?

$\frac{13}{5} + \frac{11}{5}i$

Write in the form $a + bi$.

$\frac{5 + 3i}{2 - i}$

$y = x^2 - 6x - 13$

$x = -4 \pm \sqrt{13}$

$x = 4 \pm \sqrt{13}$

$x = 5 \pm \frac{\sqrt{73}}{6}$

$2 + 7i$

$22 + 7i$

$\frac{7}{5} + \frac{11}{5}i$

Write a quadratic with real coefficients whose roots are $3 \pm 2i$.

$y = x^2 + 6x + 13$

Solve with the quadratic formula.

$3x^2 - 5x - 4 = 0$

-1

Multiply.

$(3 - 2i)(4 + 5i)$

$y = x^2 - 6x + 5$

Solve over the complex numbers.

$x^2 + 4x + 13 = 0$

$(-1, -2)$ and $(-4, -5)$

$x = \frac{5 \pm \sqrt{73}}{3}$

$x = \frac{5 \pm \sqrt{73}}{6}$

$-i$

$\frac{13}{5} + \frac{1}{5}i$

$x = -2 \pm 3i$

$x = -4 \pm 3i$

Solve the system.

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

1

Simplify i^{83}.

$x = 4 \pm \sqrt{19}$

A ball is launched: $h(t) = -16t^2 + 48t + 64$ feet. When does it hit the ground?

1.5 s

Solve by factoring.

$6x^2 + x - 12 = 0$

$(1, 1)$ and $(4, 4)$

i

$x = 2 \pm 3i$

4 s

$(-3, -11)$

$(-\infty, -3] \cup [5, \infty)$

$x = -\frac{4}{3}, \frac{3}{2}$

A parabola has vertex $(2, -3)$ and passes through $(4, 5)$. Write its equation.

3,600 ft²

120 ft of fence encloses three sides of a rectangular pen along a barn. What is the largest area?

1,800 ft²

Solve and write in interval notation.

$x^2 - 2x - 15 > 0$

$(-\infty, -3) \cup (5, \infty)$

FINISH

You made it!

Quadratics Maze: Answer Grid

Name _____ Period _____

Write each answer in the order you found it, and show your work for that room.

1 Answer: _____	Work:
2 Answer: _____	Work:
3 Answer: _____	Work:
4 Answer: _____	Work:
5 Answer: _____	Work:
6 Answer: _____	Work:
7 Answer: _____	Work:
8 Answer: _____	Work:
9 Answer: _____	Work:
10 Answer: _____	Work: