

SOLVING POLYNOMIAL EQUATIONS MAZE

Name: _____

Solving Polynomial Equations

Find the real and complex solutions for each polynomial equation. Show your work in the space provided. Then find your answer in the paths leading from that question on the maze to find the solution.

1. $x^4 + 64x = 0$	2. $4x^3 + 32 = 0$	3. $x^3 + 3x^2 - 10x = 0$	4. $x^4 - 5x^2 + 4 = 0$
6. $3x^4 + 18 = 21x^2$	7. $2x^3 - 250 = 0$	8. $x^3 + 2x^2 - 5x - 10 = 0$	9. $x^3 - 5 = 0$
11. $4x^4 - 11x^2 - 3 = 0$	12. $9x^4 + 5x^2 - 4 = 0$	13. $x^2 - 4x - 13 = 0$	

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Name: _____

Find the answer to question #1 in the path that leads from the snowflake to your next answer. Write #2 in the next snowflake. Continue on the path to complete the maze and you reach "Finish."

START

FINISH

A Winter-Themed Activity

About this Activity:

Your Algebra 2 students will solve 15 Polynomial Equations. There are quadratic, cubic, quartic, and quintic polynomials to solve.

Solutions include, real, rational, and complex roots. The activity has a corresponding Snowflake Maze for students to follow when the student response page is completed.

This is a fun approach to review Polynomial Equations before Winter Break.

An answer key is provided with solutions of the completed Snowflake Maze.

Have a wonderful holiday season!



Product Pages

www.FlamingoMath.com

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Solving Polynomial Equations

Find the real and complex solutions for each polynomial equation. Show your work in the space provided. Then find your answer in the paths leading from that question on the maze to find the solution.

1.

$$x^4 + 64x = 0$$

2.

$$4x^3 + 32 = 0$$

3.

$$x^3 + 3x^2 - 10x = 0$$

4.

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

5.

$$x^3 - 5x^2 - 3x + 15 = 0$$

6.

$$3x^4 + 18 = 21x^2$$

11.

$$4x^4 - 11x^2 - 3 = 0$$

Name: _____

Solving Polynomial Equations

Find the real and complex solutions for each polynomial equation. Show your work in the space provided. Then find your answer in the paths leading from that question on the maze to find the solution.

1.

$$\begin{aligned} x^4 + 64x &= 0 \\ x(x^3 + 64) &= 0 \\ x &= 0 \quad x^3 = -64 \\ x &= \sqrt[3]{-64} \\ x &= -4 \\ \{0, -4\} \end{aligned}$$

2.

$$\begin{aligned} 4x^3 + 32 &= 0 \\ 4x^3 + 8 &= 0 \\ x^3 &= -8 \\ x &= \sqrt[3]{-8} \\ x &= -2 \\ \{-2\} \end{aligned}$$

3.

$$\begin{aligned} x^3 + 3x^2 - 10x &= 0 \\ x(x^2 + 3x - 10) &= 0 \\ x(x+5)(x-2) &= 0 \\ x &= 0, x = -5, x = 2 \\ \{0, -5, 2\} \end{aligned}$$

4.

$$\begin{aligned} x^4 - 5x^2 + 4 &= 0 \\ (x^2 - 4)(x^2 - 1) &= 0 \\ x^2 = 4 \quad x^2 = 1 \\ x = \pm 2 \quad x = \pm 1 \\ \{-1, 1, -2, 2\} \end{aligned}$$

5.

$$\begin{aligned} x^3 - 5x^2 - 3x + 15 &= 0 \\ x^2(x-5) - 3(x-5) &= 0 \\ (x^2-3)(x-5) &= 0 \\ x^2 = 3 \quad x = 5 \\ x = \pm\sqrt{3} \\ \{5, -\sqrt{3}, \sqrt{3}\} \end{aligned}$$

8.

$$x^4 - 2x^2 - 5x - 10 = 0$$

9.

$$\begin{aligned} P/q &= -1 \\ x^3 - 5x^2 + 4x + 10 &= 0 \\ x^2 - 6x + 10 &= 0 \end{aligned}$$

10.

$$\begin{aligned} P/q &= -2 \\ x^3 - 10x - 12 &= 0 \\ x^2 - 2x - 6 &= 0 \\ x &= 2 \pm \sqrt{4+7} \end{aligned}$$

Name: _____

Find the answer to question #1 in the path that leads from the snowflake to your next answer. Write #2 in the next snowflake. Continue on the path to complete the maze and you reach "finish."

START

$\{-4\}$

$\{1, -1, -\sqrt{6}, \sqrt{6}\}$

$\{5\}$

$\{-2, 1 + \sqrt{7}, 1 - \sqrt{7}\}$

$\{-1, 3 + i, 3 - i\}$

$\{-2, 2\}$

$\{0, -4\}$

$\{5, -\sqrt{3}, \sqrt{3}\}$

$\{-5, 5\}$

$\{-2, -\sqrt{5}, \sqrt{5}\}$

$\{-\sqrt{3}, \sqrt{3}, -\frac{1}{2}i, \frac{1}{2}i\}$

$\{-2\}$

$\{-5, -\sqrt{3}, \sqrt{3}\}$

$\{-1, 1, -2, 2\}$

$\{2 + \sqrt{17}, 2 - \sqrt{17}\}$

$\{-\frac{2}{3}, \frac{2}{3}, -i, i\}$

$\{-2, 3, -i, i\}$

$\{-2, 5\}$

$\{0, 2, -5\}$

$\{-1, -\sqrt{2}, \sqrt{2}\}$

$\{2, 1 + \sqrt{5}, 1 - \sqrt{5}\}$

$\{0, 1, -\sqrt{3}, \sqrt{3}\}$

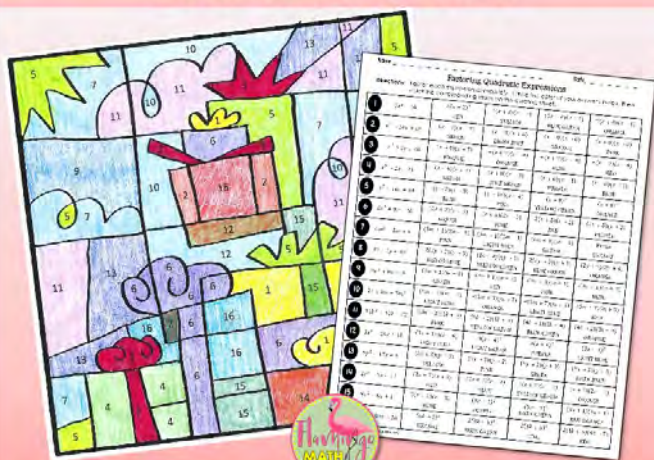
FINISH



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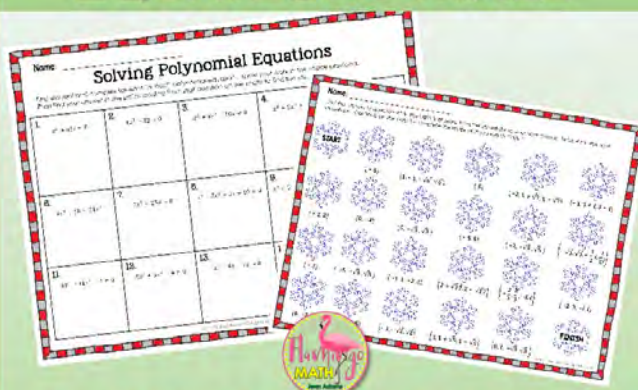
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SOLVING POLYNOMIAL EQUATIONS MAZE



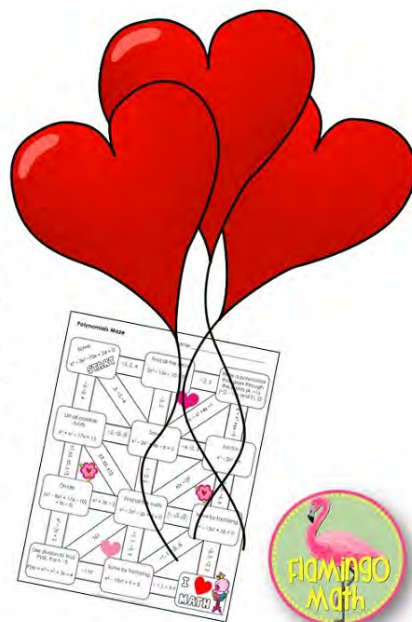
A Winter-Themed Activity

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Coloring Activities

POLYNOMIALS MAZE



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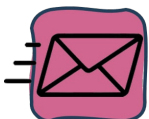
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My goal is to help you bring balance into your teacher life by providing relevant content, engaging activities, and comprehensive assessments for your high-stakes math course.

Jean Adams

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