Sections 2.1- 2.3 Review

Objective: *Students will be given review problems about polynomials to prepare for assessment Tuesday.*

2.1 → Quadratics Funct

2.2 → Long Div & Sythetic

2.3 Graph. But use Quadratic Form.

Wrote Polynomial from Zero s.

Think Write Pair share

2.1

A quadratic function has a vertex, (4, -2) and passes thru (-1, 5). Write the standard form of this quadratic.

How do you find the zeros of a quadratic function?

one of each on form. assess

$f(x) = x^2 + 3x - 4$ Factoring

$g(x) = x^2 + 12x + 7$ Complete of $\square$

$h(x) = 3x^2 + 5x - 1$ Quad Form.

Think Write Pair share

Explain the error in solving the equation and find the correct solutions

$$3x^2 + 6x + 15 = 0$$

$$x = \frac{-6 \pm \sqrt{6^2 - 4(3)(15)}}{2(3)}$$

$$= \frac{-6 \pm \sqrt{-144}}{6}$$

$$= \frac{-6 \pm 12i}{6}$$

$$\cancel{= 1 \text{ or } -3}$$

Find the factored form of the polynomials.

$3x^2 - 48$ ← Diff of Squares

$9x^4 - 16$

$3x^5 + 12x^4 + 13x$ ← Quad Form

$x^3 + 64$ ← Sum or Diff of Cube

$8x^3 - 7x^2 + 56x - 49$ ← Factor By Grouping

Think Write Pair share

Identify the vertex

$f(x) = 3x^2 + 6x - 1$

$1 = 3x^2 + 6x$

$3 + 1 = 3(x^2 + 2x + 1)$

$4 = 3(x + 1)^2$

$\frac{-b}{2a}$

$f(x) = 3(x+1)^2 - 4$

$V(-1, -4)$

$f(x) = x^2 + 5x - 1$

$\frac{25}{4} + 1 = x^2 + 5x + \left(\frac{5}{2}\right)^2$

$\frac{29}{4} = \left(x + \frac{5}{2}\right)^2$

$f(x) = \left(x + \frac{5}{2}\right)^2 - \frac{29}{4}$

Vertex $\left(-\frac{5}{2}, -\frac{29}{4}\right)$

DISCRIMINANT In the quadratic formula, the expression $b^2 - 4ac$ is called the **discriminant** of the associated equation $ax^2 + bx + c = 0$.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ ← discriminant

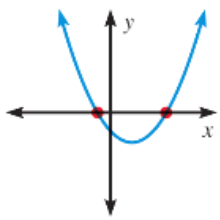
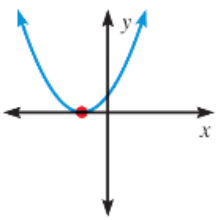
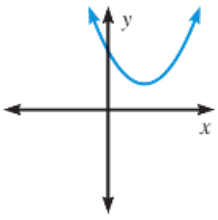
No Real Soln. + 0

Think -write -Pair Share

Explain the relationship between the x-intercepts and the discriminant of the quadratic function.

KEY CONCEPT *For Your Notebook*

Using the Discriminant of $ax^2 + bx + c = 0$

Value of discriminant	positive	Zero	Negative
x- intercepts	Two x-intercepts	One x-intercept	No x-intercept
Graph of $y = ax^2 + bx + c$			

The zeros of a polynomial are 5, $2+\sqrt{3}$, $2-\sqrt{3}$, what is the polynomial in standard form?

$(x-5)(x-2-\sqrt{3})(x-2+\sqrt{3})$

$(x-5)(x^2-2x+\cancel{x\sqrt{3}}-2x+4-\cancel{2\sqrt{3}}-\cancel{x\sqrt{3}}+\cancel{2\sqrt{3}}-\sqrt{9}$

$(x-5)(x^2-4x+1) = x^3-4x^2+x$
$-5x^2+20x-5$

$x^3-9x^2+21x-5$

When given zeros of a polynomial function, how do you we find the standard form of the polynomial?

Extra Practice

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- Quiz Corrections