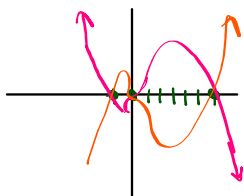


Quiz 3.1

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



Oct 17-11:00 AM

2.4B Real Zeros of a Polynomial

Objective: 10) I can use the Rational Roots Theorem to list the possible zeros of a polynomial.

11) I can write a linear factorization of a polynomial function.

12) I can write a polynomial function given zeros and multiplicity.

Oct 28-9:54 AM

Write the polynomial function for the given degree and zeros.

Degree 3, with -1, 4, 2 as zeros.

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

With your partner:

Degree 3, with 1/2, -3, and 0 as zeros.

$f(x) = x(x+3)(2x-1)$ $x = 0$
 $(x^2 + 3x)(2x-1)$ $2x = \frac{1}{2}$
 $2x - 1 = 0$

Oct 28-9:59 AM

★ Rational Zeros Theorem ★

If all coefficients are integers and the constant is not 0, then all possible rational roots are:

$$x = \pm \frac{\text{factors of constant}}{\text{factors of leading coefficient}}$$

Oct 28-10:02 AM

List the possible zeros of $f(x) = 3x^3 - 5x^2 - x + 2$

$$x = \pm \frac{1, 2}{1, 3} = \pm 1, 2, \frac{1}{3}, \frac{2}{3}$$

Find all **zeros** of the polynomials and write a **linear factorization**.

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

$$x = \pm \frac{1, 2}{1, 3} = \pm 1, 2, \frac{1}{3}, \frac{2}{3}$$

1)
$$\begin{array}{r} 3 \quad 4 \quad -5 \quad -2 \\ \quad 3 \quad 7 \quad 2 \\ \hline 3 \quad 7 \quad 2 \quad 0 \end{array}$$

$3x^2 + 7x + 2$

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

$x=1 \quad x=-\frac{1}{3} \quad x=-2$

$$\frac{6}{3x} \bigg| \frac{1}{3x}$$

Oct 28-10:26 AM

Oct 28-10:29 AM

Find all **zeros** of the polynomials and write a **linear factorization**.

$$f(x) = x^3 + 3x^2 - 11x + 7$$

$$x=1$$

$$x = \pm \frac{1, 7}{1} = \pm 1, 7$$

1)
$$\begin{array}{r} 1 \quad 3 \quad -11 \quad 7 \\ \quad 1 \quad 4 \quad -7 \\ \hline 1 \quad 4 \quad -7 \quad 0 \end{array}$$

$$x^2 + 4x - 7$$

$$x = \pm \frac{1, 7}{1} = 1, 7$$

7)
$$\begin{array}{r} 1 \quad 4 \quad -7 \\ \quad 7 \quad 28 \\ \hline 1 \quad 11 \end{array}$$

$$\sqrt{44}$$

$$\begin{array}{r} 4 \quad \sqrt{11} \\ 2 \quad 2 \end{array}$$

$$2\sqrt{11}$$

Quadratic Form

$$x = \frac{-4 \pm \sqrt{4^2 - 4(1)(-7)}}{2(1)}$$

$$= \frac{-4 \pm \sqrt{44}}{2}$$

$$= \frac{-4 \pm 2\sqrt{11}}{2}$$

$$= -2 \pm \sqrt{11}$$

$$x = 1, -2 \pm \sqrt{11}$$

Oct 7-3:22 PM

Find all **zeros** of the polynomials and write a **linear factorization**.

With your partner:

$$f(x) = 2x^3 - 7x^2 - 8x + 8$$

$$x = \pm \frac{1, 2, 4, 8}{1, 2} = \pm 1, 2, 4, 8, \frac{1}{2}$$

4)
$$\begin{array}{r} 2 \quad -7 \quad -8 \quad 14 \quad 8 \\ \quad 8 \quad 4 \quad -16 \quad -8 \\ \hline 2 \quad 1 \quad -4 \quad -2 \quad 0 \end{array}$$

$$2x^3 + x^2 - 4x - 2$$

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

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

$$x = -\frac{1}{2} \quad x^2 - 2 = 0$$

$$x^2 = 2$$

$$x = \pm \sqrt{2}$$

$$x = 4, -\frac{1}{2}, \sqrt{2}, -\sqrt{2}$$

Oct 28-10:38 AM

Oct 28-10:51 AM