

Home: _____

page 445-6 14-33 all, 61-70

Date: _____

<http://www.mathvizza.com>Bell WorkDirections: Please find the roots by factoring.

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

$$0 = x^2 + 6x + 5$$

$$\star 0 = (x+1)(x+5)$$

$$x+1=0 \quad x+5=0$$

$$x = -1 \quad x = -5$$

Objectives

1. The students will write products as polynomials in standard form.
2. The students will investigate zeros of polynomial functions.

p445

Write each product as a polynomial in standard form.

14. $3x^2(4x^3 - 2x^2 + 5x + 2)$

$$12x^5 - 6x^4 + 15x^3 + 6x^2$$

17. $(x+7)(5x-3)$

$$5x^2 - 3x + 35x - 21$$

$$5x^2 + 32x - 21$$

MU. $(x-1)^2(2x+5)$

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

$$2x^3 + 5x^2 - 4x^2 - 10x + 2x + 5$$

$$2x^3 + x^2 - 8x + 5$$

MU. $f(x) = \frac{2}{15}x(x-3)(x+5)$

$$\frac{2}{15}x(x^2 + \frac{2}{1}x - 15)$$

MU. $(5x+3)^3$

$$(5x+3)(5x+3)^2$$

$$(5x+3)(25x^2 + 30x + 9)$$

⋮

$$\frac{2}{15}x^3 + \frac{4}{15}x^2 - 2x$$

Is the given number a zero?

If $(x-a)$ is a factor of a polynomial function, then $f(a)=0$.

If $f(a)=0$ then $x-a$ is a factor of the polynomial function.

Sketchpad Demo

You need to answer questions like

Is $(x+2)$ a factor of x^2-x-6 ? $f(-2) = (-2)^2 - (-2) - 6$
 $= 4 + 2 - 6$
 $= 6 - 6 = 0$

Is $(x-4)$ a factor of $f(x) = -4x^4 - 28x^3 - 64x^2 - 48$?

$$f(4) = -4(4)^4 - 28(4)^3 - 64(4)^2 - 48$$

$$= -4(256) - 28(64) - 64(16) - 48$$

$$= -3888$$

$x-4$ is
 not a
 factor
 of $f(x)$

Is $(x+7)$ a factor of $g(x) = 2x^4 + 8x^3 - 38x^2 + 28x$?

Is $x+1$ a factor of $f(x) = 3x^4 + 2x^3 - x^2 + 4x + 4$?