

JAN 10/08

GRAPHING POLYNOMIALS - PART DEUX

SKETCH THE GRAPH OF

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

FACTORS $\pm 1 \pm 2$ PICK $(x-1) \rightarrow x=1$

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

$$f(1) = 0$$

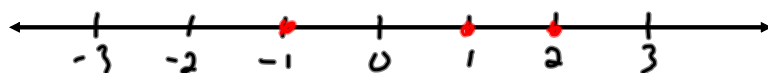
$$\begin{array}{r|rrrr} 1 & 1 & -2 & -1 & 2 \\ & & 1 & -1 & -2 \end{array}$$

$$1 \quad -1 \quad -2 \quad 0$$

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

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

ROOTS $-1, 1, 2$



$$x > 2 \quad \text{USE } x = 3$$

$$f(3) = (3+1)(3-1)(3-2)$$

+ + +

POSITIVE

$$1 < x < 2 \quad x = 1.5$$

$$f(1.5) = (1.5+1)(1.5-1)(1.5-2)$$

+ + -

NEGATIVE

$$-1 < x < 1 \quad x = 0$$

$$f(0) = (0+1)(0-1)(0-2)$$

+ - -

POSITIVE

$$x < -1 \quad x = -2$$

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

- - -

NEGATIVE

