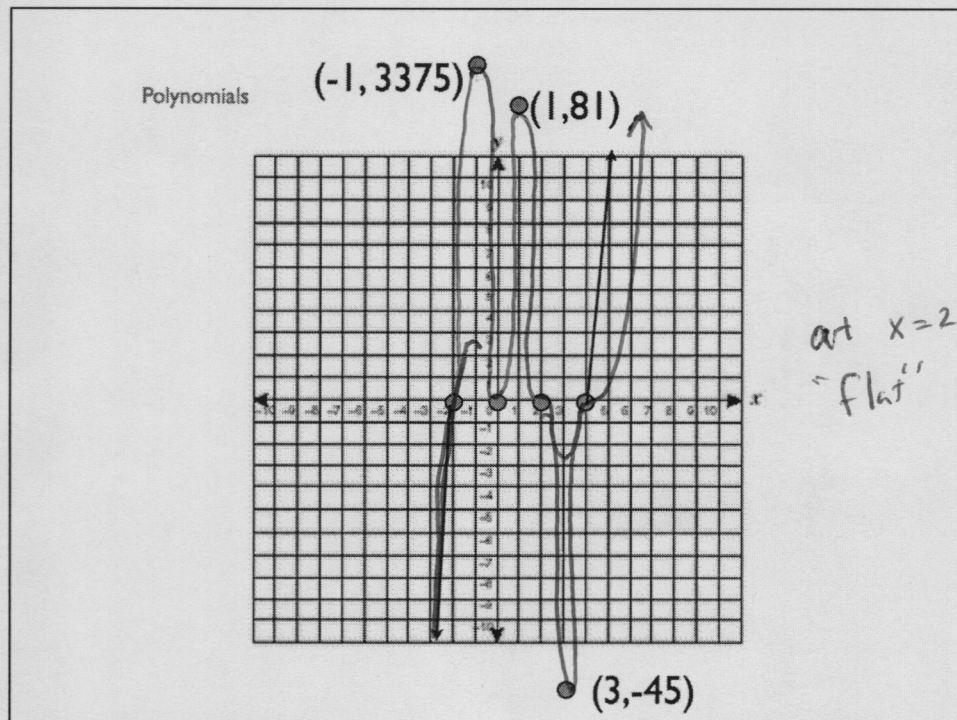


Polynomials

On Paper

Graph the following Polynomial:

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



Key Features

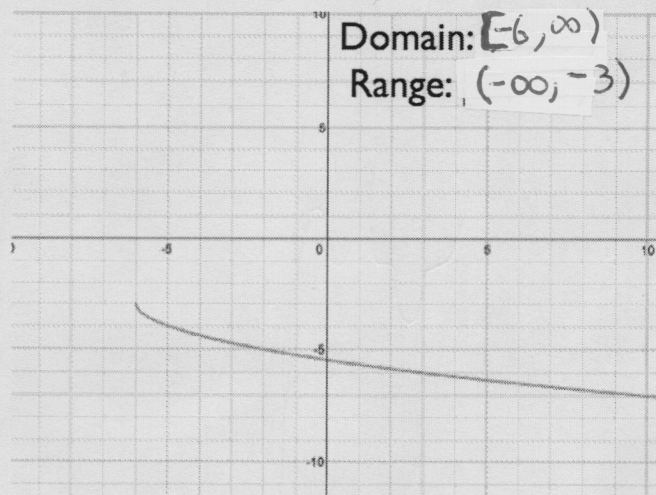
Identify which function below is a square root function, **graph** it & state its **domain & range**:

a.) $f(x) = -\sqrt[3]{x-2} + 3$

b.) $f(x) = (x-2)^2 + 6$

c.) $f(x) = -2^x + 8$

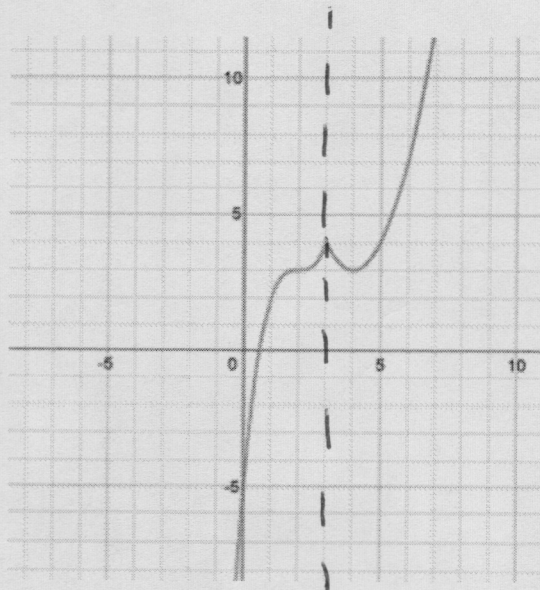
d.) $f(x) = -\sqrt{x+6} - 3$



Piece-Wise Functions

Graph the following Piece-wise Function:

$$f(x) = \begin{cases} (x - 4)^2 + 3 & x > 3 \\ (x - 2)^3 + 3 & x \leq 3 \end{cases}$$



Polynomials

If $x-3$ is a root of $f(x)$ find all roots of $f(x)$:

$$f(x) = x^5 - 2x^4 - 5x^3 + 6x^2$$

$$x^2 (x^3 - 2x^2 - 5x + 6)$$

Roots are : $x=1, x=3, x=-2$ & $x=1$ Try root $= x=1$

$$\begin{array}{r} 1 \mid 1 \quad -2 \quad -5 \quad 6 \\ \quad \quad 1 \quad -1 \quad -6 \\ \hline 1 \quad -1 \quad -6 \quad 0 \end{array}$$

marks

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

$$\text{roots } x^2 (x-1)(x-3)(x+2)$$