PRE-CALCULUS: by Finney, Demana, Watts and Kennedy

Chapter 2: Polynomial, Power, and Rational Functions

2.1: Linear and Quadratic Modeling

x^2+6x+8 / x^2-9 — What you'll Learn About

Polynomial Function
- Variable has to be in numerator
- Exponent is a positive integer

Degree – Highest power of Variable

L.C. – number in front of term that gives degree.

Determine which are Polynomial Functions. For those that are, state the degree and leading coefficient.

a) $f(x) = 4x^3 - 5x - .5$

Yes

Degree = 3

L.C. = 4

$\sqrt{9+16} = 5$

b) $g(x) = 6x^{-4} + 7$

$= \frac{6}{x^4} + 7$

Not a polynomial

c) $h(x) = \sqrt{9x^4 + 16x^2}$ =

$= (9x^4+16x^2)^{1/2}$

No

$\sqrt{x} = x^{1/2}$

$\sqrt[3]{x} = x^{1/3}$

d) $k(x) = 15 - 2x^4$

$-2x^4+15$

Yes

Degree = 4

L.C. -2

Slope-intercept Form

$y = mx+b$ Slope $= m$, y-inter b

Pt-Slope Form

$y-y_1 = m(x-x_1)$

Slope = m

Given pt (x_1, y_1)

Standard form

$Ax+By = C$

A, B, & C are integers

$A > 0$

Write an equation for the linear function f satisfying the given conditions then graph the function.

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

$(-1,2)$ $(3,-2)$

x_1, y_1 x_2, y_2

Slope $= \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}$

$= \frac{y_2-y_1}{x_2-x_1}$

$= \frac{-2-2}{3-(-1)}$

$= \frac{-4}{4} = -1$

Pt-Slope

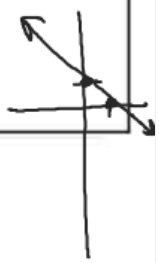
$y+2 = -1(x-3)$

Slope-intercept

$y+2 = -1(x-3)$

$y+2 = -x+3$

$y = -x+1$



Standard form

$y = -x+1$

$+x \quad +x$

$x+y = 1$