

I Review of Slopes and Equations of Lines

Slope: The **slope** is the measure of the steepness of a line.

$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

$$m = \text{---}$$

Equation of a Line: i) slope y-intercept form or ii) standard form

$$y = mx + b$$

$$Ax + By + C = 0, A, B, C \in I, A > 0$$

Note: i) A **Vertical Line** has a slope that is _____ and an equation of the form _____.

ii) A **Horizontal Line** has a slope that is _____ and an equation of the form _____.

Ex. 1. Find the equation of the line determined by the given information.

a) slope -2 , y-intercept 3

b) horizontal, through $(-2, 5)$

c) through $(-2, 4)$ & $(-6, 6)$

II Rationalizing the Denominator or Numerator

A **rational number** either repeats or terminates in its decimal form.

An **irrational number** neither repeats nor terminates in its decimal form.

Ex. 1. Rationalize each *denominator*.

a) $\frac{1}{2\sqrt{3}}$

b) $\frac{1+2\sqrt{2}}{\sqrt{3}}$

c) $\frac{\sqrt{3}}{1-2\sqrt{3}}$

Ex. 2. Rationalize each *numerator*.

a) $\frac{2\sqrt{5}}{3}$

b) $\frac{\sqrt{3}+\sqrt{5}}{5}$

III Domain and Range

The **domain** is the set of all x -values for which a relation is defined.

The **range** is the set of all possible y -values.

Ex. 1. State the domain and range of the following.

a) $y = x^2 - 8$

b) $2x - 3y + 6 = 0$

c) $y = \frac{2}{x+1}$

d) $y = -\sqrt{x+2} - 3$

B: Solving Linear Equations, Systems of Linear Equations and Quadratic Equations

1. Solve

a) $2x - y = -2$
 $x + 2y = -6$

b) $x^2 + 3x - 10 = 0$

C: Function Notation

1. Evaluate each of the following for $f(x) = -2x^2 + 3x - 5$.

a) $f(0)$

b) $f(-2)$

D: Finite Differences

1. Use finite differences to determine whether each relation is *linear*, *quadratic* or neither.

a) $x \mid f(x)$

1	3
2	5
3	7
4	9
5	11

b) $x \mid f(x)$

1	50
2	32
3	18
4	8
5	2

HW.