Section 2.2 B

35) $y = \frac{-3}{5}x + 2$

a) Find the slope of the given line

Number in front of x is the slope: $slope$: $m = -\frac{3}{5}$

b) Find the slope of all lines parallel to the given line

Slope is the same: $slope$: $m = -\frac{3}{5}$

c) Find the slope of all lines perpendicular to the given line.

Slope is reciprocal with opposite sign

Slope = $\frac{5}{3}$

37) $y = 3x - 2$

a) Find the slope of the given line

Number in front of x is the slope: $slope\colon\ m = 3$

b) Find the slope of all lines parallel to the given line

slope: $slope\ is\ the\ same\colon\ m = 3$

c) Find the slope of all lines perpendicular to the given line.

Slope is reciprocal with opposite sign

Slope = $\frac{-1}{3}$

39) $y = \frac{2}{9}x - 4$

a) Find the slope of the given line

Number in front of x is the slope: $slope:\ m = \frac{2}{9}$

b) Find the slope of all lines parallel to the given line

slope is the same: $slope:\ m = \frac{2}{9}$

c) Find the slope of all lines perpendicular to the given line.

Slope is reciprocal with opposite sign

Slope = $\frac{-9}{2}$

41) $y = -6x + 5$

a) Find the slope of the given line

Number in front of x is the slope: $slope$: $m = -6$

b) Find the slope of all lines parallel to the given line

slope is the same: $slope$: $m = -6$

c) Find the slope of all lines perpendicular to the given line.

Slope is reciprocal with opposite sign

Slope = $\frac{1}{6}$

43) $x = 2$

a) Find the slope of the given line

Slope of Equations of lines with only x is undefined.

$slope - undefined$

b) Find the slope of all lines parallel to the given line

slope is the same: $slope - undefined$

c) Find the slope of all lines perpendicular to the given line.

The perpendicular line will be horizontal. Slope = 0

45) $y = 4$

a) Find the slope of the given line

Slope of Equations with only y is 0

$slope\ -0$

b) Find the slope of all lines parallel to the given line

Slope is the same $slope\ -0$

c) Find the slope of all lines perpendicular to the given line.

The perpendicular line will be vertical: Slope - undefined

47 – 52:
Given below are descriptions of two lines.
Find the slope of Line 1:
Find the slope of Line 2:
Are the lines parallel, perpendicular or neither?

47) Line 1: Goes through $(6, -3)$ and $(5,9)$

Line 2: Goes through $(17,18)$ and $(5,17)$

$$\text{Slope line 1} = \frac{9-(-3)}{5-6} = \frac{12}{-1}$$

$$\text{Slope line 1} = -12$$

$$\text{Slope Line2} = \frac{17-18}{5-17} = \frac{-1}{-12}$$

$$\text{Slope line 2} = \frac{1}{2}$$

Perpendicular

47 – 52:
Given below are descriptions of two lines.
Find the slope of Line 1:
Find the slope of Line 2:
Are the lines parallel, perpendicular or neither?

49) Line 1: Goes through $(8,2)\ and\ (-6,3)$

Line 2: Goes through $(-5,9)\ and\ (9,8)$

$$\text{Slope line 1} = \frac{3-2}{-6-8} = \frac{1}{-14}$$

$$\text{Slope line 1} = \frac{-1}{14}$$

$$\text{Slope line 2} = \frac{8-9}{9-(-5)} = \frac{-1}{14}$$

$$\text{Slope line 2} = \frac{-1}{14}$$

Parallel

47 – 52:
Given below are descriptions of two lines.
Find the slope of Line 1:
Find the slope of Line 2:
Are the lines parallel, perpendicular or neither?

51) Line 1: Goes through $(2,-2)\ and\ (3,1)$

Line 2: Goes through $(10,5)\ and\ (9,8)$

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

$$\text{Slope line 2} = \frac{8-5}{9-10} = \frac{3}{-1} = -3$$

Neither