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

Linear Equations

Finding the Slope of a Line – Given two points

Find the slope of the line containing the given points:

1. (−5, −20) & (9,9)

x_1 y_1 x_2 y_2

$$m = \frac{9-(-20)}{9-(-5)} = \frac{9+20}{9+5} = \boxed{\frac{29}{14}}$$

2. (−2, −1) & (4,5)

x_1 y_1 x_2 y_2

$$m = \frac{5-(-1)}{4-(-2)} = \frac{5+1}{4+2} = \frac{6}{6} = \boxed{1}$$

3. (−3, −2) & (−3,6)

x_1 y_1 x_2 y_2

$$m = \frac{6-(-2)}{-3-(-3)} = \frac{6+2}{-3+3} = \frac{8}{0}$$

$$= \boxed{\text{undefined}}$$

4. (5, −3) & (−5, −3)

x_1 y_1 x_2 y_2

$$m = \frac{-3-(-3)}{-5-5} = \frac{-3+3}{-10} = \frac{0}{-10} = \boxed{0}$$

5. (1,3) & (3, −2)

x_1 y_1 x_2 y_2

$$m = \frac{-2-3}{3-1} = \boxed{\frac{-5}{2}}$$

6. (−3,4) & (4,1)

x_1 y_1 x_2 y_2

$$m = \frac{1-4}{4-(-3)} = \frac{-3}{4+3} = \boxed{\frac{-3}{7}}$$

7. (1, −3) & (7,3)

x_1 y_1 x_2 y_2

$$m = \frac{3-(-3)}{7-1} = \frac{3+3}{6} = \frac{6}{6} = \boxed{1}$$

8. (0,0) & (0, −6)

x_1 y_1 x_2 y_2

$$m = \frac{-6-0}{0-0} = \frac{-6}{0} =$$

$$\boxed{\text{undefined}}$$

9. (−9,1) & (1,1)

x_1 y_1 x_2 y_2

$$m = \frac{1-1}{1-(-9)} = \frac{0}{1+9} = \frac{0}{10} = \boxed{0}$$

10. (18, −5) & (18,20)

x_1 y_1 x_2 y_2

$$m = \frac{20-(-5)}{18-18} = \frac{20+5}{0} = \frac{25}{0}$$

$$= \boxed{\text{undefined}}$$

11. $(-5,-2)$ & $(8,13)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{13-(-2)}{8-(-5)} = \frac{13+2}{8+5} = \boxed{\frac{15}{13}}$$

12. $(4,-17)$ & $(-20,-1)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{-1-(-17)}{-20-4} = \frac{-1+17}{-24} = \frac{16}{-24} = \boxed{-\frac{2}{3}}$$

13. $(10,17)$ & $(7,8)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{8-17}{7-10} = \frac{-9}{-3} = \boxed{3}$$

14. $(-15,-6)$ & $(8,3)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{3-(-6)}{8-(-15)} = \frac{3+6}{8+15} = \boxed{\frac{9}{23}}$$

15. $(-12,1)$ & $(4,1)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{1-1}{4-(-12)} = \frac{0}{4+12} = \frac{0}{16} = \boxed{0}$$

16. $(12,-3)$ & $(-17,3)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{3-(-3)}{-17-12} = \frac{3+3}{-29} = \boxed{\frac{6}{-29}}$$

17. $(-15,9)$ & $(0,3)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{3-9}{0-(-15)} = \frac{-6}{0+15} = \frac{-6}{15} = \boxed{\frac{-2}{5}}$$

18. $(5,6)$ & $(8,13)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{13-6}{8-5} = \boxed{\frac{7}{3}}$$

19. $(-10,-2)$ & $(-8,8)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{8-(-2)}{-8-(-10)} = \frac{8+2}{-8+10} = \frac{10}{2} = \boxed{5}$$

20. $(7,-9)$ & $(-13,-6)$

$x_1\ y_1\quad x_2\ y_2$

$$m = \frac{-6-(-9)}{-13-7} = \frac{-6+9}{-20} = \boxed{\frac{3}{-20}}$$