1. $(\overset{x_1\ y_1}{4,\,-3})$ $\overset{\text{Origin}}{\underset{(x_2\ y_2)}{(0,\,0)}}$

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

$$m = \frac{0 - -3}{0 - 4}$$

$$m = \frac{0 + 3}{0 - 4}$$

$$\boxed{m = \frac{3}{-4}}$$

2. $\overset{x_1\ y_1}{(7,\,4)}\overset{x_2\ y_2}{(K,\,3)}$

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

$$\frac{-1}{1} = \frac{3 - 4}{K - 7}$$

$$\frac{-1}{1} \nearrow \times \frac{-1}{K - 7}$$

$$-1(K - 7) = -1$$

$$-K + 7 = -1 - 7$$

$$\frac{-K}{-1} = \frac{-8}{-1}$$

$$\boxed{K = 8}$$

3. $\overset{x_1\ y_1}{(2,\,-1)}\overset{x_2\ y_2}{(7,\,8)}$

$$m = \frac{3}{-4}$$

3. $\overset{x_1 \, y_1}{(2, -1)} \overset{x_2 \, y_2}{(7, 8)}$

$$m = \frac{8 - -1}{7 - 2}$$

$$m = \frac{8 + 1}{7 - 2}$$

$$m = \frac{9}{5}$$

4.

$x_1 \, y_1 \quad x_2 \, y_2$

$$-k \boxed{+7} = -1 \ -7$$

$$\frac{-k}{-1} = \frac{-8}{-1}$$

$$\boxed{k = 8}$$

#4. $2(y-1) = 3x+4$

$$2y \boxed{-2} = 3x+4 +2$$

$$\frac{2y}{2} = \frac{3x}{2} + \frac{6}{2}$$

$$y = \boxed{\frac{3}{2}}x + 3$$

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

$$x_1 \ y_1 \qquad x_2 \ y_2$$

$$1 = \frac{2}{3}$$

$$\boxed{m = \frac{9}{5}}$$

#5.

$\overset{x_1 \; y_1}{(5, 1)} \; \overset{x_2 \; y_2}{(3K, 5)}$ $m = \frac{2}{3}$

$$\frac{2}{3} = \frac{5 - 1}{3K - 5}$$

$$\frac{2}{3} \times \frac{4}{3K - 5}$$

$$2(3K - 5) \xrightarrow{+10} 12$$
$$6K \boxed{-10} = 12 + 10$$
$$\frac{6K}{6} = \frac{22}{6} \qquad \boxed{K = \frac{11}{3}}$$

#6. (-

$$y = \boxed{\frac{3}{2}}x + 3$$

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

$\frac{2}{3}$

#6. $\overset{x_1\ y_1}{(-3,4)}$ $\overset{x_2\ y_2}{(4,0)}$

$$m = \frac{0-4}{4--3}$$

$$m = \frac{-4}{4+3}$$

$$\boxed{m = \frac{-4}{7}}$$

$\boxed{\frac{11}{3}}$

5

7. $(3K, 2)$ $(5K, 6)$ $m = \dfrac{-1}{2}$

$x_1 \ y_1 \qquad\qquad x_2 \ y_2$

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

$$\dfrac{-1}{2} = \dfrac{6 - 2}{5K - 3K}$$

$$\dfrac{-1}{2} = \dfrac{4}{2K}$$

$$\dfrac{-2K}{-2} = \dfrac{8}{-2}$$

$$\boxed{K = -4}$$

8. $(\overset{x_1 \ y_1}{4, m})(\overset{x_2 \ y_2}{-2m, 10})$

$m = \dfrac{-3}{4}$

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

$\dfrac{-3}{4} = \dfrac{10 - m}{-2m - 4}$

$3(-2m - 4) = 4(10 - m)$

$6m + 12 = 40 - 4m$

$\dfrac{10m}{10} = \dfrac{28}{10}$

$m = \dfrac{14}{5}$

9.
$$\overset{x_1 \ y_1}{(1, 2k)} \overset{x_2 \ y_2}{(-3k, 2)} \qquad m = \frac{-3}{1}$$

$$\frac{-3}{1} \times \frac{2 - 2k}{-3k - 1}$$

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

$$9k + 3 = 2 - 2k$$

$$\frac{11k}{11} = \frac{-1}{11}$$

$$\boxed{k = \frac{-1}{11}}$$

$\frac{1}{1}$ change sign

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

10.

$$5x - 8 = 5y + 2$$

$$5y + 2 = 5x - 8 - 2$$

$$\frac{5y}{5} = \frac{5x}{5} \quad \frac{-10}{5}$$

$$y = \boxed{1} x - 2$$

$$\frac{+}{1} \bigr\updownarrow \; \text{change} \atop \text{sign}$$

$$\boxed{\frac{-1}{1}}$$

12. a) $\frac{3}{4}y + 2 = 3x + 2$ ×4

$3y \boxed{+8} = 12x + 8$ $\begin{matrix} -8 \\ -8 \end{matrix}$

$\frac{3y}{3} = \frac{12x}{3} + \frac{0}{3}$

$y = 4x + 0$

Slope: 4

y-int: 0

b) $3(2y+1) = 7x - 7$

$6y + 3 = 7x - 7^{-3}$

$\dfrac{6y}{6} = \dfrac{7x}{6} - \dfrac{10}{6}$

$y = \dfrac{7x}{6} - \dfrac{5}{3}$

Slope: $\dfrac{7}{6}$

y-int: $-\dfrac{5}{3}$