

⑪ $y = x + 4$
 $(3, -2)$
 $-2 = \cancel{3} + b$
 $-3 \mid -3$
 $-5 = b$
 $y = x - 5$

⑫ $y = 3x - 5$
 $(4, -3)$
 $-3 = 3(4) + b$
 $-3 = 12 + b$
 $-12 \mid -12$
 $-15 = b$
 $y = 3x - 15$

⑬ $y = -5x + 8$
 $(0, 2)$
 $2 = 0 + b$
 $2 = b$
 $y = -5x + 2$

⑭ $y = -\frac{1}{2}x + 6$
 $(-4, 2)$
 $2 = -\frac{1}{2}(-4) + b$
 $2 = 2 + b$
 $-2 \mid -2$
 $0 = b$
 $y = -\frac{1}{2}x$

⑮ $(-2, 3)$
 $y = -\frac{3}{4}x + 4$
 $3 = -\frac{3}{4}(-2) + b$
 $3 = \frac{3}{2} + b$
 $-\frac{3}{2} \mid -\frac{3}{2}$
 $\frac{3}{2} = b$
 $y = -\frac{3}{4}x + \frac{3}{2}$

⑯ $(9, 12)$
 $y = 13x - 4$
 ~~$12 = 13(9) - 4$~~
 $12 = 13(9) + b$
 $12 = 117 + b$
 $-117 \mid -117$
 $-105 = b$
 $y = 13x - 105$

⑰ \overline{BC} $(3, 4)$ $(0, 3)$
 \overline{AD} $(0, 3)$ $(6, -1)$
 $\overline{BC} \frac{4-3}{3-0} = \frac{1}{3}$
 $\overline{AD} \frac{-3-1}{0-6} = \frac{-2}{-6} = \frac{1}{3}$

Slopes of \overline{AD} and \overline{BC} are the same, so they are parallel.

⑱ \overline{FD} $(4, 7)$ $(8, 1)$
 $m = \frac{7-1}{4-8} = \frac{6}{-4} = -\frac{3}{2}$
 \overline{EC} $(0, 0)$ $(9, 6)$
 $\frac{0-6}{0-9} = \frac{-6}{-9} = \frac{2}{3}$

Slopes are neg reciprocals so \overline{FD} and \overline{EC} are perpendicular.

⑲ Yes. Their slopes are neg reciprocals.

⑳ $(4, -11)$ $(6, -2)$
 $(0, -9)$ $(4, -5)$
 $\frac{-11-(-9)}{4-0} = \frac{-2}{4} = -\frac{1}{2}$
 $\frac{-2-(-5)}{6-4} = \frac{3}{2}$

No. Slopes are not neg reciprocals.

⑳ ① $2x - 8y = -24$
 $-2x \mid -2x$
 $-8y = -2x - 24$
 $-8 \mid -8 \quad -8$
 $y = \frac{1}{4}x + 3$

⑳ ② $4x + y = -2$
 $-4x \mid -4x$
 $y = -4x - 2$

⑳ ③ $x - 4y = 4$
 $-x \mid -x$
 $-4y = -x + 4$
 $-4 \mid -4 \quad -4$
 $y = \frac{1}{4}x - 1$

① + ③ are perpendicular to ②

① + ③ are parallel.

(22)

$$\begin{array}{r} 3x - 9y = 9 \\ -3x \qquad -3x \\ \hline -9y = -3x + 9 \\ \frac{-9}{-9} \quad \frac{-3x}{-9} \quad \frac{9}{-9} \\ \hline y = \frac{1}{3}x - 1 \end{array}$$

(2)

$$\begin{array}{r} 3y = \frac{x+12}{3} \\ \frac{3y}{3} \quad \frac{x}{3} \quad \frac{12}{3} \\ \hline y = \frac{1}{3}x + 4 \end{array}$$

(3)

$$\begin{array}{r} 2x - 6y = 12 \\ -2x \qquad -2x \\ \hline -6y = -2x + 12 \\ \frac{-6}{-6} \quad \frac{-2x}{-6} \quad \frac{12}{-6} \\ \hline y = \frac{1}{3}x - 2 \end{array}$$

all are parallel.

(23)

$$\begin{array}{r} y = -2x + 4 \\ -2 = -2(-3) + b \\ -2 \neq 6 + b \\ -6 \quad -6 \\ \hline -8 \neq b \\ \hline y = \frac{1}{2}x - 8 \end{array}$$

(24)

$$\begin{array}{r} y = \frac{1}{2}x - 3 \\ 2 = \frac{1}{2}(-5) + b \\ 2 \neq -\frac{5}{2} + b \\ +\frac{5}{2} \quad +\frac{5}{2} \\ \hline 4\frac{1}{2} = b \\ \hline y = -2x + 4\frac{1}{2} \end{array}$$

(25)

$$\begin{array}{r} y = \frac{1}{3}x + 6 \\ 5 = \frac{1}{3}(-4) + b \\ 5 \neq -\frac{4}{3} + b \\ +\frac{4}{3} \quad +\frac{4}{3} \\ \hline 6\frac{1}{3} = b \\ \hline y = -3x + 6\frac{1}{3} \end{array}$$

(26)

$$\begin{array}{r} y = -\frac{1}{4}x + 3 \\ 6 = -\frac{1}{4}(2) + b \\ 6 \neq -\frac{2}{4} + b \\ +\frac{1}{2} \quad +\frac{1}{2} \\ \hline 6\frac{1}{2} = b \\ \hline y = 4x + 6\frac{1}{2} \end{array}$$

(27)

$$\begin{array}{r} y = 5x - 3 \\ 8 = 5(3) + b \\ 8 \neq 15 + b \\ -15 \quad -15 \\ \hline -7 = b \\ \hline y = -\frac{1}{5}x - 7 \end{array}$$

(28)

$$\begin{array}{r} y = 3x + 5 \\ -2 = 3(4) + b \\ -2 \neq 12 + b \\ -12 \quad -12 \\ \hline -14 = b \\ \hline y = -\frac{1}{3}x - 14 \end{array}$$

(33)

Neither

(34)

parallel

(35)

perpendicular

(36)

Neither

(37)

neither

(38)

parallel