

A ① The sum of a number and 9. Can be written as:

$$\rightarrow x+9 \quad \text{or} \quad 9+x$$

② Evaluate: $3x^2 + 5y + 7$
if $x = -2$ and $y = 3$.

$$\rightarrow 3(-2)^2 + 5(3) + 7$$

$$3(4) + 15 + 7$$

$$12 + 15 + 7$$

$$27 + 7$$

$$34$$

③ Solve for x . $x + 5 = 17$.

$$\begin{array}{r} x+5=17 \\ -5 \quad -5 \\ \hline \end{array}$$

$$x=12$$

B (4) Solve for x : $4x+9=21$.

$$\begin{array}{r} 4x+9=21 \\ -9 \quad -9 \\ \hline \end{array}$$

$$\frac{4x}{4} = \frac{12}{4}$$

↳ $x=3$

(5) Solve for x . $5x+7=3x-9$.

$$\begin{array}{r} 5x+7=3x-9 \\ -3x \quad -7 \quad -3x \quad -7 \\ \hline \hline \end{array}$$

$$\frac{2x}{2} = \frac{-16}{2}$$

↳ $x=-8$

(6) Solve for x . $|x|-4=8$.

$$\begin{array}{r} |x|-4=8 \\ +4 \quad +4 \\ \hline \hline \end{array}$$

$$|x|=12$$

↓
 $x=12$

↓
 $x=-12$

☐ ⑦ Solve for x. $mx - n = y$.

$$\begin{array}{r} mx - n = y \\ \underline{+n} \quad \underline{+n} \end{array}$$

$$\cancel{m}x = \frac{y+n}{\cancel{m}}$$

$$\hookrightarrow x = \frac{n+y}{m}$$

⑧ Solve for x. $\frac{r}{x} = \frac{s}{t}$.

~~$$\frac{r}{x} = \frac{s}{t}$$~~

$$\cancel{x}t = \cancel{s}r$$

$$\hookrightarrow x = \frac{rt}{s}$$

⑨ Solve for y. $\frac{3}{7} = \frac{y}{8}$

~~$$\frac{3}{7} = \frac{y}{8}$$~~

$$\cancel{7}y = \frac{24}{\cancel{7}}$$

$$\hookrightarrow y = \frac{24}{7}$$

D ⑩ Simplify : $8xy^2 + 3xy + 4xy^2 - 2xy$

$$\underline{8xy^2} + \underline{3xy} + \underline{4xy^2} - \underline{2xy}$$

$$\hookrightarrow 12xy^2 + xy$$

⑪ Simplify : $6x^2(4x^3y)$

$$\hookrightarrow 24x^5y$$

⑫ $x^{-5} = \frac{1}{x^5}$

E ⑬ Simplify : $(5x + 2z) + (3x - 4z)$

$$\underline{5x} + \underline{2z} + \underline{3x} - \underline{4z}$$

$$\hookrightarrow 8x - 2z$$

⑭ Simplify : $(4x - 7z) - (3x - 4z)$

$$\underline{4x} - \underline{7z} - \underline{3x} + \underline{4z}$$

$$\hookrightarrow x - 3z$$

⑮ Factor $ab + ac$

$$\hookrightarrow a(b + c)$$

F⑩ Factor $x^2 - 5x - 14$

$$1 \cdot 1 \begin{pmatrix} 1 & -7 \\ 1 & 2 \end{pmatrix} \begin{matrix} 1 \cdot -14 \\ -1 \cdot 14 \\ 2 \cdot -7 \end{matrix} \begin{matrix} -2 \cdot 7 \end{matrix}$$

$$(x-7)(x+2)$$

⑪ Solve $x^2 + 7x = -10$

$$\underline{+10} \quad \underline{+10}$$

$$x^2 + 7x + 10 = 0$$

$$\begin{matrix} 1 & 5 \\ 1 & 2 \end{matrix}$$

$$(x+5)(x+2) = 0$$

$$\begin{matrix} \downarrow \\ x+5=0 \\ -5 & -5 \\ \hline \end{matrix}$$

$$x = -5$$

$$\begin{matrix} \downarrow \\ x+2=0 \\ -2 & -2 \\ \hline \end{matrix}$$

$$x = -2$$

⑫ Solve for x : $2x + 3 \leq 11$

$$\begin{matrix} 2x+3 \leq 11 \\ -3 & -3 \\ \hline \end{matrix}$$

$$\begin{matrix} 2x \leq 8 \\ \frac{2x}{2} & \frac{8}{2} \\ \hline \end{matrix}$$

$$\hookrightarrow x \leq 4$$

9 (19) Solve for x : $3x + 4 \geq 5x - 8$.

$$\begin{array}{r} 3x + 4 \geq 5x - 8 \\ \underline{-5x} \quad \underline{-5x} \end{array}$$

$$\begin{array}{r} -2x + 4 \geq -8 \\ \underline{-4} \quad \underline{-4} \end{array}$$

$$\begin{array}{r} -2x \geq -12 \\ \underline{-2} \quad \underline{-2} \end{array}$$

$$x \leq 6$$

(20) Solve for x : $|x - 3| < 6$

$$\begin{array}{l} \swarrow |x - 3| < 6 \searrow \\ \begin{array}{r} x - 3 < 6 \\ \underline{+3} \quad \underline{+3} \end{array} \qquad \begin{array}{r} x - 3 > -6 \\ \underline{+3} \quad \underline{+3} \end{array} \end{array}$$

$$x < 9$$

$$x > -3$$

(21) Solve for x . $2|x| + 4 \geq 8$.

$$\begin{array}{r} 2|x| + 4 \geq 8 \\ \underline{-4} \quad \underline{-4} \end{array}$$

$$\begin{array}{r} 2|x| \geq 4 \\ \underline{2} \quad \underline{2} \end{array}$$

$$\swarrow |x| \geq 2 \searrow$$

$$x \geq 2$$

$$x \leq -2$$

H (22) Solve this system for x and y .

$$\begin{array}{l} 2(8x + 2y = 7) \rightarrow 16x + 4y = 14 \\ 3x - 4y = 5 \end{array}$$

$$\begin{array}{r} 16x + 4y = 14 \\ 3x - 4y = 5 \\ \hline 19x = 19 \\ \frac{19x}{19} = \frac{19}{19} \end{array}$$

$$x = 1$$



$$3(1) - 4y = 5$$

$$\begin{array}{r} 3 - 4y = 5 \\ \underline{-3} \quad \underline{-3} \end{array}$$

$$\begin{array}{r} -4y = 2 \\ \underline{-4} \quad \underline{-4} \end{array}$$

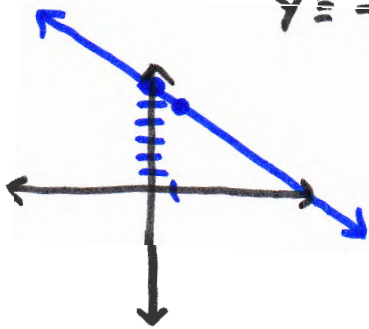
$$\hookrightarrow y = -\frac{1}{2}$$

$$(1, -\frac{1}{2})$$

(23) Graph $x + y = 6$

$$\begin{array}{r} -x \\ \underline{-x} \end{array}$$

$$y = -x + 6$$



I (24) What is the slope and the y-intercept of $y = 6x + 2$?

$m = 6$ $b = 2$ or $(0, 2)$

(25) What is the equation of the line passing through the points $(3, 6)$ and $(2, -3)$?

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - 6}{2 - 3} = \frac{-9}{-1} = \underline{\underline{+9}}$$

$$y - y_1 = m(x - x_1)$$

$$y - 6 = 9(x - 3)$$

$$\begin{array}{r} y - 6 = 9x - 27 \\ \underline{+6} \qquad \underline{+6} \end{array}$$

$$y = -9x - 21$$