

SOLVE EACH SYSTEM OF LINEAR EQUATIONS

① $\begin{cases} y = 2x \\ 4x - y = 10 \end{cases}$ (use substitution)

$$4x - (2x) = 10$$

$$2x = 10$$

$$\frac{2x}{2} = \frac{10}{2}$$

$$x = 5$$

$$y = 2(5) \therefore y = 10$$

$$(x, y) = \{(5, 10)\}$$
 ← Answer

② $\begin{cases} y = 7 - x \\ 2x - y = 8 \end{cases}$ (use substitution)

$$2x - (7 - x) = 8$$

$$2x - 7 + x = 8$$

$$3x - 7 = 8$$

$$+7 \quad +7$$

$$3x = 15$$

$$x = 5 \therefore y = 7 - 5 = 2$$

$$(x, y) = \{(5, 2)\}$$
 ← Answer

③ $\begin{cases} -3x + 2y = 10 \\ -2x - y = -5 \end{cases}$ (use elimination)

$$\begin{array}{r} -3x + 2y = 10 \\ (2) \rightarrow -4x - 2y = -10 \\ \hline -7x = 0 \\ x = 0 \end{array}$$

$$\begin{array}{r} -2(0) - y = -5 \\ -y = -5 \therefore y = 5 \end{array}$$

$$(x, y) = \{(0, 5)\}$$
 Answer

④ $\begin{cases} 3x - 5y = 8 \\ 4x - 7y = 10 \end{cases}$

$$\begin{array}{r} 3x - 5y = 8 \quad (4) \rightarrow 12x - 20y = 32 \\ 4x - 7y = 10 \quad (-3) \rightarrow -12x + 21y = -30 \\ \hline -y = 2 \\ y = -2 \end{array}$$

$$3x - 5(-2) = 8 \therefore 3x - 10 = 8 \therefore 3x = 18 \therefore x = 6$$

$$(x, y) = \{(6, -2)\}$$
 Answer

⑤ $(x-8)(x+8) = x^2 - 64$

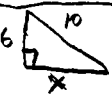
⑥ $5x^2 - 5 = 5(x^2 - 1) = 5(x-1)(x+1)$

⑦ The measure of angle 2 is $180^\circ - 60^\circ = 120^\circ$

⑧ $\begin{array}{r} -x + 4 = -5x + 16 \\ +5x - 4 \quad +5x - 4 \\ \hline 4x = 12 \therefore x = 3 \end{array}$

⑨-16 Look for "perfect square factors", hint, the 1st 7 perfect squares are:
 $1^2=1, 2^2=4, 3^2=9, 4^2=16, 5^2=25, 6^2=36, 7^2=49 \dots$

⑨ $\sqrt{12} = \sqrt{4 \cdot 3} = 2\sqrt{3}$ ⑩ $\sqrt{18} = \sqrt{9 \cdot 2} = 3\sqrt{2}$ ⑪ $\sqrt{80} = \sqrt{16 \cdot 5} = 4\sqrt{5}$ ⑫ $\sqrt{3} \cdot \sqrt{5} = \sqrt{15}$
 ⑬ $\sqrt{125} = \sqrt{25 \cdot 5} = 5\sqrt{5}$ ⑭ $\sqrt{48} = \sqrt{16 \cdot 3} = 4\sqrt{3}$ ⑮ $\sqrt{45} = 3\sqrt{5}$ ⑯ $\sqrt{8} = 2\sqrt{2} = \sqrt{4 \cdot 2} = 2\sqrt{2}$

⑰  $10^2 = x^2 + 6^2$
 $100 = x^2 + 36$
 $64 = x^2$
 $8 = x$

⑱ Supplementary $\Rightarrow 180^\circ$ (Bonus) $N + (N+2) + (N+4) = 234$
 $3N + 6 = 234 \therefore 3N = 228 \therefore N = 76$
 $\therefore 76, 78, 80$