

WARMUP

Simplify.

$$\textcircled{1} (y^3 - 8)(y - 2)^{-3} = \frac{y^3 - 8}{(y - 2)^3} = \frac{y^2 + 2y + 4}{(y - 2)^2}$$

$$\textcircled{2} \frac{t(t+2)}{t-2} + \frac{-1(t-2)}{t+2} = \frac{t^2 + 2t - t + 2}{(t+2)(t-2)} = \frac{t^2 + t + 2}{(t+2)(t-2)}$$

$$\textcircled{3} \text{ Solve: } \begin{cases} 4x - y = 14 \\ 5x + 3y = 9 \end{cases} \quad (3, -2)$$

$$\textcircled{1} \frac{y^2 + 2y + 4}{(y - 2)^2}$$

$$\textcircled{2} \frac{t^2 + t + 2}{(t + 2)(t - 2)}$$

$$\textcircled{3} (3, -2)$$

P. 239

$$\textcircled{1} \quad \frac{u^{-2} - v^{-2}}{u^{-1} - v^{-1}} = \frac{\frac{v^2 \cdot 1}{v^2 \cdot u^2} - \frac{1 \cdot u^2}{v^2 \cdot u^2}}{\frac{v \cdot 1}{v \cdot u} - \frac{1 \cdot u}{v \cdot u}}$$

$$= \frac{\frac{v^2 - u^2}{u^2 v^2}}{\frac{v - u}{vu}} \stackrel{\text{KCF } (v-u)(v+u)}{=} \frac{v^2 - u^2}{u^2 v^2} \cdot \frac{vu}{v-u}$$

$$= \boxed{\frac{v+u}{uv}}$$

$$\textcircled{2} \quad \frac{(x-1) \cdot 1}{(x+1)(x-1)} + \frac{1}{(x+1)(x-1)} = \frac{x-1+1}{(x+1)(x-1)} = \frac{x}{(x+1)(x-1)}$$

$$\frac{x}{x-1} \cdot \frac{(x+1)(\cancel{x-1})}{x^2} = \boxed{\frac{x+1}{x}}$$

$$(b) \frac{(a^2+b^2)(a^2-b^2)}{(a+b)(a^2+b^2)} = \frac{(a^2+b^2)(a-b)(a+b)}{(a+b)(a^2+b^2)}$$

$$\frac{(a^3+a^2b)(+ab^2+b^3)}{a^2(a+b)+b^2(a+b)}$$

$$\boxed{a-b}$$

$$(15) \frac{3(x-1)}{(x-1)x(x+2)} - \frac{2 \cdot x}{x(x-1)(x+2)} + \frac{1 \cdot x(x-1)}{(x+2)x(x-1)}$$

$$\frac{\cancel{3x} - 3 - \cancel{2x} + \cancel{x^2} - \cancel{x}}{x(x-1)(x+2)}$$

$$\boxed{\frac{x^2 - 3}{x(x+2)(x-1)}}$$

P. 239 (10), (18)

$$(10) \frac{b-a}{ab}$$

$$(18) \frac{t+1}{t-1}$$

EVENS P. 239 10, 14, 20, 22

RATIONAL SYSTEMS

(28)

$$\frac{4}{u} + \frac{3}{v} = 3$$

$$\left(\frac{2}{3}, -1\right)$$

$$\frac{6}{u} + \frac{5}{v} = 4$$

$$\frac{3}{u} + \frac{4}{v} = 10$$

$$\left(\frac{1}{4}, -2\right)$$

$$\frac{4}{u} - \frac{6}{v} = 19$$

(34)

$$\frac{6}{u} + \frac{5}{v} = 1 \quad (3, -5)$$

$$\frac{3}{u} - \frac{10}{v} = 3$$

(36)

$$\frac{3}{u} + \frac{4}{v} = 1$$

$$\frac{6}{u} - \frac{2}{v} = 1$$

(5, 10)

RATIONAL SYSTEMS

EX. 1

SOLVE.

$$\left(\frac{4}{u} + \frac{3}{v} = 3 \right) \cdot 3$$

$$\left(\frac{6}{u} + \frac{5}{v} = 4 \right) \cdot -2$$

$$\begin{cases} \frac{12}{u} + \frac{9}{v} = 9 \\ + \frac{-12}{u} - \frac{10}{v} = -8 \end{cases}$$

$$\frac{-1}{v} = 1 \cdot v$$

$$\boxed{-1 = v}$$

$$\boxed{\left(\frac{2}{3}, -1 \right)}$$

(u, v)

$$\frac{4}{u} + \frac{3}{-1} = 3$$

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

$$u \cdot 4 = 6 \cdot u$$

$$\frac{4}{6} = \frac{6u}{u}$$

$$\boxed{\frac{2}{3} = u}$$

② $\left(\frac{3}{u} + \frac{4}{v} = 10 \right) \cdot 3$

$$\left(\frac{4}{u} - \frac{6}{v} = 19 \right) \cdot 2$$

$$\begin{cases} \frac{9}{u} + \frac{12}{v} = 30 \\ + \frac{8}{u} - \frac{12}{v} = 38 \end{cases}$$

$$u \cdot 17 = 68 \cdot u$$

$$\frac{17}{68} = \frac{68u}{68}$$

$$\boxed{\frac{1}{4} = u}$$

$$\frac{3}{4} + \frac{4}{v} = 10$$

$$12 + \frac{4}{v} = 10$$

$$\frac{4}{v} = -2$$

$$4 = -2v$$

$$\boxed{v = -2}$$

$$\boxed{\left(\frac{1}{4}, -2 \right)}$$