

$$1) \frac{b+4}{4b} - \frac{3}{4b} = \frac{b-5}{b}$$

$$b \cdot \frac{b+4}{4b} = \frac{b-5}{b} \cdot b$$

$$\frac{\cancel{b}(b+4)}{4\cancel{b}} = b-5$$

$$b(b+4) = 4b(b-5)$$

$$b^2 + b = 4b^2 - 20b$$

$$4 \cdot \frac{b+4}{4} = (b-5)4$$

$$- \frac{b+4}{b} = 4b - 20$$

$$\frac{1}{b} = 3b - 20$$

$$\frac{+20}{21} = 3b \quad b=7$$

$$2) \frac{r-4}{5r} = \frac{r-6}{r} + \frac{r+4}{5r}$$

$$- \left(\frac{r+4}{5r} \right) \quad - \left(\frac{r+4}{5r} \right)$$

$$-8 = \frac{5r(r-6)}{r}$$

$$\begin{array}{r} -8 = 5r - 30 \\ +30 \quad +30 \\ \hline \end{array}$$

$$\frac{22}{5} = \frac{5r}{5} \quad 4.4 = r$$

$$5r \cdot \frac{-8}{5r} = \frac{r-6}{r} \cdot 5r$$

$$\begin{array}{r} -8r = 5r^2 - 30r \\ +8r \quad +8r \\ \hline \end{array}$$

$$0 = 5r^2 - 22r$$

$$r = 4.4$$

$$3) \frac{1}{5} = \frac{6}{5} - \frac{1}{r}$$
$$-\frac{1}{5} \quad -\frac{1}{5}$$

$$0 = 1 - \frac{1}{r}$$

$$r \cdot \frac{1}{r} = 1 \cdot r$$

$$r = 1$$

$$4) \frac{2n-10}{3n^2} = \frac{5n+30}{6n^2} + \frac{2}{3n} \cdot \left(\frac{2n}{2n}\right) \frac{4n}{6n^2}$$

$$\left(\frac{6n^2}{6n^2}\right) \frac{2n-10}{3n^2} = \frac{9n+30}{6n^2} \cdot 6n^2$$

$$2(2n-10) = 9n+30$$

$$4n-20 = 9n+30$$

$$\begin{array}{r} 4n-20 = 9n+30 \\ -30 \quad -30 \\ \hline 4n-50 = 9n \end{array}$$

$$\begin{array}{r} 4n-50 = 9n \\ -4n \quad -4n \end{array}$$

$$-50 = 5n$$

$$n = -10$$

$$5) \frac{2}{2} \cdot \frac{3n-15}{2n^2} + \frac{1}{4n^2} = \frac{1}{n^2} \cdot \frac{4}{4}$$

$$\frac{6n-30}{4n^2} + \frac{1}{4n^2} = \frac{4}{4n^2}$$

$$\cancel{4n^2} \cdot \frac{6n-29}{\cancel{4n^2}} = \cancel{4n^2} \cdot \frac{4}{\cancel{4n^2}}$$

$$\begin{array}{r} 6n-29=4 \\ +29 \quad +29 \\ \hline 6n=33 \\ \cancel{6} \mid \cancel{6} \mid 33 \\ n=5 \frac{1}{2} \end{array}$$

$$6) \frac{1}{5x} = \frac{x-5}{x} - \frac{2}{x}$$

$$\cancel{5x} \cdot \frac{1}{\cancel{5x}} = \frac{x-5}{\cancel{x}} \cdot \frac{\cancel{5x}}{1}$$

$$1 = 5x - 35$$

$$\frac{36}{5} = \frac{5x}{5}$$

$$\frac{36}{5} = x$$

$$7) \frac{1}{4x} = \frac{3x-12}{2x^2} - \frac{x+6}{2x^2}$$

$$\cancel{4x} \cdot \frac{1}{\cancel{4x}} = \frac{2x-18}{\cancel{2x}} \cdot \cancel{2x}$$

$$x1 = \frac{4x-36}{\cancel{x}}$$

$$x = 4x - 36$$

$$\begin{array}{r} -4x \quad -4x \\ \hline \end{array}$$

$$\frac{-3x}{-3} = \frac{-36}{-3}$$

$$x = 12$$

$$8) \left(\frac{a-4}{2a^2} \right) = \left(\frac{1}{a} - \frac{1}{a^2} \right) a^2$$

$$2 \cdot \frac{a-4}{2} = (a-1)^2$$

$$a = -2$$

$$-a - 4 = 2a - 2$$

$$\begin{array}{r} -a - 4 = 2a - 2 \\ \hline -a - 4 = 2a - 2 \\ +2 \quad +2 \\ \hline -4 = a - 2 \end{array}$$

$$9) \frac{5}{7v^2 - 32v + 16} = \frac{1}{7v^2 - 32v + 16} + \frac{4}{v - 4}$$

$$\cancel{\frac{4}{7v^2 - 32v + 16}} = \cancel{\frac{4}{v - 4}} \cdot \frac{\cancel{(v - 4)}(7v - 4)}{7v^2 - 32v + 16}$$

$$\frac{4}{4} = 4 \frac{(7v - 4)}{4}$$

$$1 = 7v - 4$$

$$\frac{5}{7} = \frac{7v}{7}$$

$$v = \frac{5}{7}$$

$$10) 1 + \frac{1}{k-5} = \frac{2}{k-5}$$

$$11) \frac{1}{n^2 + 10n + 16} + \frac{1}{n + 8} = \frac{8}{n^2 + 10n + 16}$$

$$12) \frac{3}{x+3} - \frac{6}{x^2+3x} = \frac{3}{x^2+3x}$$

$$13) \frac{x+5}{2x-14} + \frac{3x-6}{x-7} = \frac{1}{2}$$

$$14) \frac{7}{4p-16} - \frac{1}{2p-4} = \frac{1}{4p-8}$$