

$$\sqrt{\frac{y}{5y^2 + 22y + 21}}$$

$$\sqrt{5y^2 + 22y + 21} = 0$$

$$\frac{10\sqrt{5, 21}}$$

$$\sqrt{5y^2 + 7y} + \sqrt{15y + 21} = 0$$

$$\sqrt{3, 15}$$

$$y(\sqrt{5y+7}) + 3(\sqrt{5y+7}) = 0$$

$$(\sqrt{5y+7})(y+3) = 0$$

$$\sqrt{5y+7} = 0$$

$$\sqrt{5y} = -7$$

$$y = -\frac{7}{5}$$

$$y+3 = 0$$

$$y = -3$$

$$\text{Ex. } \frac{7}{6n^2 - 42n + 72} - \frac{5}{5n^2 - 20n}$$

$$\frac{7}{6(n^2 - 7n + 12)} - \frac{5}{\cancel{5}n(n-4)}$$

$$\frac{7n}{6(n-3)(n-4)n} - \frac{1}{n(n-4)} \frac{6(n-3)}{6(n-3)}$$

$$\frac{7n - 6(n-3)}{6(n-3)(n-4)n}$$

$$\frac{7n - 6n + 18}{6n(n-3)(n-4)} = \frac{n + 18}{6n(n-3)(n-4)}$$

$$55. \quad \frac{\frac{q}{r} - \frac{1r}{1r}}{\frac{q}{r} + \frac{1r}{1r}} = \frac{\frac{q-r}{r}}{\frac{q+r}{r}}$$

$$\frac{\frac{q-r}{\cancel{r}} \cdot \frac{\cancel{r}}{q+r}}{=} = \frac{q-r}{q+r}$$

$$2. \quad \frac{x+2}{x+4}$$

$$x+4 = 0$$

$$x = -4$$

$$17. \quad \frac{(m+n)^6}{m-n} \cdot \frac{m}{m^2+mn}$$

$$\frac{(m+n)^{\cancel{6}} \cdot \cancel{m}}{(m-n) \cancel{m} \cancel{(m+n)}}$$

$$\frac{(m+n)^5}{m-n}$$

$$15. \frac{7xy + 8x - 7y - 8}{6xy + 5x - 6y - 5}$$

$$\frac{x(7y + 8) - 1(7y + 8)}{x(6y + 5) - 1(6y + 5)}$$

$$\frac{x(7y + 8) - 1(7y + 8)}{x(6y + 5) - 1(6y + 5)}$$

$$\frac{(7y + 8) \cancel{(x - 1)}}{(6y + 5) \cancel{(x - 1)}}$$

$$\frac{7y + 8}{6y + 5}$$

$$28. \quad \frac{\sqrt{x-10}}{6x^2+x} \cdot \frac{6x^2+13x+2}{x^2-4}$$

$$\frac{\sqrt{\cancel{x-10}}}{x \cancel{(6x+1)}} \cdot \frac{\cancel{(6x+1)} \cancel{(x+2)}}{\cancel{(x+2)} \cancel{(x-2)}}$$

$$\frac{\sqrt{x}}{x}$$

$$61. \quad \frac{6(x-18)}{(x-3)(x-18)} + \frac{x(x-3)}{(x-18)(x-3)}$$

$$\frac{4(x-3)}{(x-1)(x-3)} - \frac{3(x-1)}{(x-3)(x-1)}$$

$$\frac{6(x-18) + x(x-3)}{(x-3)(x-18)}$$

$$(x-3)(x-18)$$

$$\frac{4(x-3) - 3(x-1)}{(x-1)(x-3)}$$

$$(x-1)(x-3)$$

$$\frac{6x - 108 + x^2 - 3x}{(x-3)(x-18)}$$

$$\frac{(x-1)\cancel{(x-3)}}{4x - 12 - 3x + 3}$$

$$\frac{x^2 + 3x - 108}{x-18}$$

$$\frac{x-1}{x-9}$$

$$\frac{108}{9, 12}$$

$$\frac{\cancel{(x-9)}^1(x+12)}{x-18} \cdot \frac{x-1}{\cancel{x-9}_1}$$

$$\frac{(x+12)(x-1)}{x-18}$$

59.

$$\frac{4}{x+2} + \frac{2(x+2)}{1(x+2)} = \frac{4 + 2(x+2)}{x+2}$$

$$\frac{14}{x+2} - \frac{2(x+2)}{1(x+2)} = \frac{14 - 2(x+2)}{x+2}$$

$$\frac{4 + 2x + 4}{\cancel{x+2}} \cdot \frac{\cancel{x+2}}{14 - 2x - 4}$$

$$\frac{2x + 8}{1} \cdot \frac{1}{10 - 2x}$$

$$\frac{2x+8}{10-2x} = \frac{\cancel{2}(x+4)}{\cancel{2}(5-x)} = \frac{x+4}{5-x}$$

22. $\frac{u^2 - v^2}{u - v} \div \frac{u}{u^2 - vu}$

$$\frac{(u+v)\cancel{(u-v)}}{\cancel{u-v}} \cdot \frac{\cancel{u}(u-v)}{\cancel{u}}$$

$$(u+v)(u-v)$$

24.

$$\frac{x^2 + 3x}{7} \cdot \frac{10}{5x + 15}$$

$$\frac{x \cancel{(x+3)} \overset{2}{(10)}}{7 \cancel{(5)} \overset{1}{(x+3)}}$$

$$\frac{2x}{7} \quad \text{or} \quad \frac{2}{7}x$$

29.

$$\frac{28n^2 - 343}{2n^2 - 17n + 35}$$

$$\frac{n^2 - 11n + 30}{14n^2 + 39n - 35}$$

$$\frac{7(4n^2 - 49)}{2n^2 - 17n + 35}$$

$$\frac{(n-6)(n-5)}{14n^2 + 39n - 35}$$

$$\frac{7(\cancel{2n-7})(\cancel{2n+7})}{(\cancel{2n-7})(\cancel{n-5})}$$

$$\frac{(n-6)(\cancel{n-5})}{(\cancel{2n+7})(7n-5)}$$

$$\frac{7(n-6)}{7n-5}$$

$$27. \quad \frac{a^2 + 9a + 20}{a^2 + 7a - 18} \cdot \frac{a^2 + 5a - 14}{a^2 + 8a + 16}$$

$$\frac{(a+5)(\cancel{a+4})}{(\cancel{a-2})(a+9)} \cdot \frac{(\cancel{a-2})(a+7)}{(\cancel{a+4})(a+4)}$$

$$\frac{(a+5)(a+7)}{(a+9)(a+4)}$$

37.

$$\frac{3(x-7)}{7x(x-7)} + \frac{(5)7x}{(x-7)7x}$$

$$\frac{3(x-7) + 5(7x)}{7x(x-7)}$$

$$\frac{3x - 21 + 35x}{7x(x-7)}$$

$$\frac{38x - 21}{7x(x-7)}$$

41.

$$\frac{w+2}{w+4} - \frac{2(w+4)}{1(w+4)}$$

$$\frac{w+2 - 2(w+4)}{w+4}$$

$$w+2 - 2w - 8$$

$$w+4$$

$$\frac{-w-6}{w+4}$$