

$$2. \frac{\sqrt{x+1}}{x^2-3x+2} = \frac{\sqrt{x+1}}{(x-1)(x-2)}$$

$$x-1=0$$

$$x=1$$

$$x-2=0$$

$$x=2$$

$$8. \frac{\overbrace{hg-hn} - \overbrace{4g+4n}}{\underbrace{hg-hn} + \underbrace{4g-4n}}$$

$$\frac{h(\underline{g-n}) - 4(\underline{g-n})}{h(\underline{g-n}) + 4(\underline{g-n})} = \frac{\cancel{(g-n)}(h-4)}{\cancel{(g-n)}(h+4)}$$

$$\frac{h-4}{h+4}$$

$$6. \quad \frac{x^2 + 10x}{11x + 110} = \frac{x \cancel{(x+10)}}{11 \cancel{(x+10)}} = \frac{x}{11}$$

$$33. \quad \frac{5w}{w^2 - 13w + 36} - \frac{4w}{w^2 - 14w + 45}$$

$$(w-9)(w-4)(w-5)$$

$$\frac{5w(w-5)}{(w-9)(w-4)(w-5)} - \frac{4w(w-4)}{(w-9)(w-5)(w-4)}$$

$$\frac{5w(w-5) - 4w(w-4)}{(w-9)(w-5)(w-4)}$$

$$\frac{5w^2 - 25w - 4w^2 + 16w}{(w-9)(w-5)(w-4)}$$

$$\frac{\omega^2 - 9\omega}{(\omega - 9)(\omega - 5)(\omega - 4)}$$

$$\frac{\omega(\cancel{\omega - 9})}{(\cancel{\omega - 9})(\omega - 5)(\omega - 4)}$$

$$\frac{\omega}{(\omega - 5)(\omega - 4)}$$

$$18. \quad \frac{2x^2 - 17x + 30}{2x^2 + 9x - 35} \cdot \frac{3x^2 + 18x - 21}{6 - x}$$

$2x^2 - 17x + 30$ <p style="text-align: right; margin-right: 20px;"> <math>\frac{60}{1, 60}</math>  <math>2, 30</math>  <math>3, 20</math>  <math>4, 15</math>  <math>5, 12</math> </p> $\underbrace{2x^2 - 5x}_{2x-5} - \underbrace{12x + 30}_{6(2x-5)}$ $x(2x-5) - 6(2x-5)$ $(2x-5)(x-6)$	$2x^2 + 9x - 35$ $(2x-5)(x+7)$ <hr/> $3x^2 + 18x - 21$ $3(x^2 + 6x - 7)$ $3(x+7)(x-1)$
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$$\frac{\cancel{(2x-5)} \overset{-1}{\cancel{(x-6)}}}{\cancel{(2x-5)} \overset{1}{\cancel{(x+7)}}} \cdot \frac{3 \overset{1}{\cancel{(x+7)}} \overset{-1}{\cancel{(x-1)}}}{\cancel{6-x}}$$

$$-3(x-1)$$

$$34. \quad \frac{19}{f-2} + \frac{(14)(-1)}{(2-f)(-1)}$$

$$\frac{19}{f-2} + \frac{-14}{f-2} = \frac{5}{f-2}$$

$y^2$

$$41. \quad \frac{y^2}{y^2} \cdot \frac{1}{1} + \frac{3 \cdot y}{y \cdot y} - \frac{40}{y^2}$$

$$\frac{y \cdot 1}{y \cdot y} + \frac{8}{y^2}$$

$$\frac{y^2 + 3y - 40}{y^2}$$

$$\frac{y + 8}{y^2}$$

$$\frac{\cancel{(y+8)}(y-5)}{\cancel{y^2}} \cdot \frac{\cancel{y^2}}{\cancel{y+8}}$$

$$y-5$$

$$y+5$$

40.

$$\frac{\cancel{(y+5)} \frac{1}{\cancel{(y+5)}} - \frac{10}{y+5}}{\frac{\cancel{(y+5)} 10}{\cancel{(y+5)} 1} + \frac{1}{y+5}} = \frac{\frac{y+5-10}{y+5}}{\frac{10(y+5)+1}{y+5}}$$

$$\frac{y-5}{\cancel{y+5}} \cdot \frac{\cancel{y+5}}{10y+50+1} = \frac{y-5}{10y+51}$$

42.

$$\frac{x^2 - x - 30}{x^2 - 36}$$

$$\frac{x^2 + 5x}{x^2 + 4x - 12}$$

$$\frac{\cancel{(x-6)} \cancel{(x+5)}}{\cancel{(x+6)} \cancel{(x-6)}} \cdot \frac{\cancel{(x+6)} (x-2)}{x \cancel{(x+5)}}$$

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

$$30. \quad \frac{4}{7p^2} - \frac{4(7p)}{p(7p)}$$

$7p^2$

$$\frac{4 - 28p}{7p^2}$$

$$39. \quad \frac{\frac{y \cdot 1}{y \cdot 1} + \frac{9}{y}}{\frac{y^2 \cdot 1}{y^2 \cdot 1} - \frac{81}{y^2}} = \frac{\frac{y+9}{y}}{\frac{y^2-81}{y^2}}$$

$$\frac{\cancel{y+9}}{\cancel{y}} \cdot \frac{\cancel{y}}{(\cancel{y+9})(y-9)} = \frac{y}{y-9}$$

$$28. \frac{\frac{k+2}{k^2-3k}}{\frac{k^2-4}{k}} = \frac{\frac{k+2}{k(k-3)}}{\frac{(k+2)(k-2)}{k}}$$

$$\frac{\frac{\cancel{k+2}}{k(k-3)}}{\frac{(k+2)(k-2)}{k}} = \frac{1}{(k-3)(k-2)}$$

28.

$$\frac{b^2}{b-6} + \frac{b-42}{b-6} = \frac{b^2+b-42}{b-6}$$

$$\frac{\cancel{(b-6)}(b+7)}{\cancel{b-6}} = b+7$$