



3.  $\frac{x^3+5x^2-9x-45}{2x^2-9x+9} \div \frac{x^2+10x+25}{12-14x+4x^2} \cdot \frac{x+5}{x^2-4x+4}$

*\* multiply by reciprocal*

$$\frac{x^3+5x^2-9x-45}{2x^2-9x+9} \cdot \frac{4x^2-14x+12}{x^2+10x+25} \cdot \frac{x+5}{x^2-4x+4}$$

*\* factor*

$$\frac{x^2(x+5)-9(x+5)}{2x^2-6x-3x+9} \cdot \frac{2(2x^2-7x+6)}{(x+5)(x+5)} \cdot \frac{(x+5)}{(x-2)(x-2)}$$

$$\frac{(x+5)(x^2-9)}{2x(x-3)-3(x-3)} \cdot \frac{2(2x^2-3x-4x+6)}{(x+5)(x+5)} \cdot \frac{(x+5)}{(x-2)(x-2)}$$

$$\frac{(x+5)(x+3)(x-3)}{(x-3)(2x-3)} \cdot \frac{2(x(2x-3)-2(x+3))}{(x+5)(x+5)} \cdot \frac{(x+5)}{(x-2)(x-2)}$$

*\* cancel common factors*

$$\frac{(x+5)(x+3)(x-3)}{(x-3)(2x-3)} \cdot \frac{2(2x-3)(x-2)}{(x+5)(x+5)} \cdot \frac{(x+5)}{(x-2)(x-2)}$$

*\* multiply remaining numerators and denominators:*

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

4.  $\frac{-5(x+2)}{x^2-4} + \frac{4x^2+8x}{x^2-4}$

*\* distribute the -5:*

$$\frac{-5x-10}{x^2-4} + \frac{4x^2+8x}{x^2-4}$$

*\* add like terms in numerators:*

$$\frac{-5x-10+4x^2+8x}{x^2-4} = \frac{4x^2+3x-10}{x^2-4}$$

*\* factor:*

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

*\* cancel:*

$$\frac{4x-5}{x-2}$$

5.  $\frac{3(2x+1)}{24x} - \frac{2x}{24x}$

*\* distribute:*

$$\frac{6x+3}{24x} - \frac{2x}{24x}$$

*\* add/subtract numerators:*

$$\frac{6x+3-2x}{24x} = \frac{4x+3}{24x}$$

*→ cannot be factored or simplified any more.*

### Assignments

- \* Review worksheet (20 points)
- \* Fix and/or finish previous assignments