

For # 6-17 state where the function is undefined.

Textbook HW P. 577-578 # 3-19 (all)

$$(3) \frac{x^2 - 9x + 14}{x^2 - 5x - 14} = \frac{(x-2)(x-7)}{(x+2)(x-7)}$$

$$= \frac{(x-2)}{(x+2)} \quad (B)$$

$$(5) \frac{x^2 + 5x - 14}{x^2 - 4x + 4} = \frac{(x+7)(x-2)}{(x-2)(x+2)}$$

$$= \frac{(x+7)}{(x+2)} \quad (C)$$

$$(7) \frac{x^2 - x - 20}{x^2 + 2x - 15} = \frac{(x-5)(x+4)}{(x+5)(x-3)}, x \neq -5, 3$$

Already simplified (NO common factors)

$$(9) \frac{x^2 - 11x + 24}{x^2 - 3x - 40} = \frac{(x-8)(x-3)}{(x-8)(x+5)}$$

$$= \frac{(x-3)}{(x+5)}, x \neq 8, -5$$

$$(11) \frac{2x^2 + 2x - 4}{x^2 - 5x - 14} = \frac{2(x^2 + x - 2)}{x^2 - 5x - 14} = \frac{2(x-1)(x+2)}{(x-7)(x+2)}$$

$$\rightarrow \frac{2(x-1)}{(x-7)}, x \neq 7, -2$$

$$(17) \rightarrow \frac{x^3 - 5x^2 - 3x + 15}{x^2 - 8x + 15} = \frac{(x-5)(x^2-3)}{(x-5)(x-3)}$$

$$\begin{aligned} & (x^3 - 5x^2) + (-3x + 15) \\ & x^2(x-5) - 3(x-5) \\ & (x-5)(x^2-3) \end{aligned}$$

$$= \frac{(x^2-3)}{(x-3)}, x \neq 5, 3$$

(19) You have to factor first and then cancel common factors.

$$\frac{x^2 + 16x + 48}{x^2 + 8x + 16} = \frac{(x+12)(x+4)}{(x+4)(x+4)}$$

$$= \frac{(x+12)}{(x+4)}$$