

Alg 2: Homework 16

$$\textcircled{1} \quad 4x^4y^2 - 49z^6 = \boxed{(2x^2y + 7z^3)(2x^2y - 7z^3)}$$

$$\textcircled{2} \quad 10x^2y^2 - 50 = 10(x^2y^2 - 25) \\ = \boxed{10(xy + 5)(xy - 5)}$$

$$\textcircled{3} \quad 3x^4 - 48 = 3(x^4 - 16) \\ = 3(x^2 + 4)(x^2 - 4) \\ = \boxed{3(x^2 + 4)(x + 2)(x - 2)}$$

$$\textcircled{4} \quad \frac{x^2 + 4x}{x^2 + 2x - 8} = \frac{x(x+4)}{(x-2)(x+4)} = \boxed{\frac{x}{x-2}}$$

$$\textcircled{5} \quad \frac{10x^5}{2x^3 + 2x^2} = \frac{5x^5x^2}{2x^2(x+1)} = \boxed{\frac{5x^3}{x+1}}$$

$$\textcircled{6} \quad \frac{y^2 + 2y - 3}{y^2 - 3y - 18} \cdot \frac{4y^2 - 24y}{2 - 2y} \\ = \frac{\overset{(-1)}{\cancel{y-1}}(\cancel{y+3})}{(\cancel{y+3})(\cancel{y-6})} \cdot \frac{4\overset{2}{\cancel{y}}(\cancel{y-6})}{2(1-\cancel{y})} \\ = \boxed{-2y}$$

$$\textcircled{7} \quad \frac{x^2 - 2x - 8}{3x - 12} \cdot \frac{x^2 - 4}{9x^2 - 18x}$$

$$= \frac{\cancel{(x+2)}\cancel{(x-4)}}{3\cancel{(x-4)}} \cdot \frac{9x\cancel{(x-2)}}{\cancel{(x+2)}\cancel{(x-2)}}$$

$$= \boxed{3x}$$

$$\textcircled{8} \quad |x+4| - 2 \geq 7$$

$$|x+4| \geq 9$$

$$\begin{cases} x+4 \geq 9 & \vee & x+4 \leq -9 \\ \{ x \geq 5 & \vee & x \leq -13 \} \end{cases}$$

