

Key

Block 3/2/2017.

$$\textcircled{1} \frac{6x^4 - x^3}{2x^4} = \frac{\cancel{x^3}(6x-1)}{2 \cdot \cancel{x} \cdot \cancel{x^3}} = \boxed{\frac{6x-1}{2x} \text{ when } x \neq 0}$$

$$\textcircled{2} \frac{x^2 - 3x - 4}{x^3 + 1} = \frac{(x-4)\cancel{(x+1)}}{\cancel{(x+1)}(x^2 - x + 1)} = \boxed{\frac{x-4}{x^2 - x + 1} \text{ when } x \neq 4}$$

$$\textcircled{3} \frac{2x^2 - 5x}{x^2 + 7x + 12} = \frac{x(2x-5)}{(x+4)(x+3)} = \boxed{\frac{2x^2 - 5x}{x^2 + 7x + 12} \text{ when } x \neq -4, x \neq -3}$$

$$\textcircled{4} \frac{x^2 - 2x}{x+5} \cdot \frac{x^2 + 6x + 5}{3x} = \frac{\cancel{x}(x-2)\cancel{(x+5)}(x+1)}{\cancel{(x+5)}(3)\cancel{(x)}} = \frac{(x-2)(x+1)}{3} = \boxed{\frac{x^2 - x - 2}{3} \text{ when } x \neq 0, x \neq -5}$$

$$\textcircled{5} \frac{x^2 + 2x - 15}{x^2 - 9} \cdot (x^2 - x - 12)$$

$$\frac{(x+5)\cancel{(x-3)}}{\cancel{(x+3)}\cancel{(x-3)}} \cdot \frac{(x-4)\cancel{(x+3)}}{1} = (x+5)(x-4) = \boxed{x^2 + x - 20 \text{ when } x \neq 3, x \neq -3}$$

$$\textcircled{6} \frac{28x^4y}{y^7} \div \frac{y^9}{2x^5} = \frac{28 \cdot \cancel{x^4} \cdot y}{\cancel{y^7} \cdot \cancel{y^6}} \cdot \frac{2x^5}{y^9} = \boxed{\frac{56x^9}{y^{15}} \text{ when } y \neq 0, x \neq 0}$$