SHOW ALL WORK. Circle answers.

Simplify each rational expression by first factoring completely both the numerator and denominator then canceling common factors.

1. $\dfrac{8x^2 - 128}{10x^2 - 50x + 40}$

2. $\dfrac{6x^4 - 24x^3 + 24x^2}{9x^3 + 18x^2 - 72x}$

3. $\dfrac{4x^3 + 8x^2 - 60x}{8x^6 + 40x^5 - 72x^4 - 360x^3}$

4. Simplify this product by factoring both numerators and denominators completely, reducing within the same ratio and/or cross canceling, then writing your answer as a single ratio with the remaining factors in the numerator and remaining factors in the denominator.

$$\frac{9x + 54}{x^3 - x} \cdot \frac{x^3 - 5x^2 - 6x}{3x^2 - 108}$$

5. Write this sum as a single ratio by first getting a common denominator.

$$\frac{2}{x + 3} + \frac{7}{x - 1}$$