

Chapter 3 – Extra Practice

1. Expand

$$A = (5x + 1)(2x - 3) = 10x^2 - 15x + 2x - 3 = \boxed{10x^2 - 13x - 3}$$

$$B = (7x + 2)^2 = \boxed{49x^2 + 28x + 4}$$

$$C = (x + 3)(4x - 1) + ((2x - 5)(x - 7)) = 4x^2 - x + 12x - 3 + 2x^2 - 14x - 5x + 35 \\ = \boxed{6x^2 - 8x + 32}$$

$$D = (6x - 1)^2 - (3x - 1)(3x + 1) = 36x^2 - 12x + 1 - (9x^2 - 1) \\ = 36x^2 - 12x + 1 - 9x^2 + 1 \\ = \boxed{27x^2 - 12x + 2}$$

$$E = 5x(2x - 7) - (x + 3)(5x - 1) = 10x^2 - 35x - (5x^2 - x + 15x - 3) \\ = 10x^2 - 35x - 5x^2 - 14x + 3 \\ = \boxed{5x^2 - 49x + 3}$$

$$F = -3x(5x - 4) - (x - 4)^2 = -15x^2 + 12x - (x^2 - 8x + 16) \\ = -15x^2 + 12x - x^2 + 8x - 16 \\ = \boxed{-16x^2 + 20x - 16}$$

2. Factor

$$A = 4x^2 + 36 = \boxed{4(x^2 + 9)} \text{ can't do more!}$$

$$B = 16x^2 - 4 = 4(4x^2 - 1) = \boxed{4(2x + 1)(2x - 1)}$$

$$C = 25x^2 - 49 = \boxed{(5x + 7)(5x - 7)}$$

$$D = 2x^2 - 4x - 30 = 2(x^2 - 2x - 15)$$

$$= \boxed{2(x-5)(x+3)}$$

$$E = 36x^2 - 48x + 16 = \boxed{(6x-4)^2}$$

$$F = 20x^2 - 120x + 180 = 20(x^2 - 6x + 9)$$

$$= \boxed{20(x-3)^2}$$

$$G = 3x^2 + 2x - 1 = 3x^2 + 3x - x - 1$$

$$\begin{array}{l} \otimes -3 \\ \oplus 2 \end{array} = 3x(x+1) - 1(x+1) = \boxed{(3x-1)(x+1)}$$

$$H = 6x^2 - 3x - 45 = 3(2x^2 - x - 15) = 3(2x^2 + 5x - 6x - 15)$$

$$\begin{array}{l} \otimes -30 \\ \oplus -1 \end{array} = 3(x(2x+5) - 3(2x+5))$$

$$I = 3x^2 - 13x - 10 = 3x^2 - 15x + 2x - 10 = \boxed{3(x-3)(2x+5)}$$

$$\begin{array}{l} \otimes -30 \\ \oplus -13 \end{array} = 3x(x-5) + 2(x-5)$$

$$= \boxed{(3x+2)(x-5)}$$

$$J = x^2 + 7x + 6$$

$$= \boxed{(x+6)(x+1)}$$

$$K = 5x^2 + 10x - 15 = 5(x^2 + 2x - 3)$$

$$= \boxed{5(x+3)(x-1)}$$