

General Instructions: If there is any work to show, show it!

1. Add or subtract as indicated and simplify your answer by combining all like terms.

10 pts a) $(2x^2 + 3x - 2) + (5x^3 + x^2 - 4x - 7)$

$$5x^3 + 3x^2 - x - 9$$

10 pts b) $(3x^3 + 5x + 2) - (5x^3 - 2x^2 - 4x + 3)$

$$-2x^3 + 2x^2 + 9x - 1$$

12 pts c) $(2xy^2 + 3y - 4x^2) - (3xy + 4y^2 - 3x^2) + (7x^2 + 8xy - 9y^2)$

$$2xy^2 + 3y - 4x^2 - 3xy - 4y^2 + 3x^2 + 7x^2 + 8xy - 9y^2$$

$$2xy^2 + 5xy + 6x^2 - 13y^2 + 3y$$

2. Expand the given expression and combine all like terms. Don't just give me an answer, show the intermediate steps that result in your answer!

10 pts a) $(2x + 3)(5x^2 - 3x + 2)$

$$10x^3 - 6x^2 + 4x + 15x^2 - 9x + 6$$

$$10x^3 + 9x^2 - 5x + 6$$

17 pts b) $2x^2(3x^3 - 2x - 5) + (x + 5)(x - 1) - 2x^3$

$$6x^5 - 4x^3 - 10x^2 + x^2 + 4x - 5 - 2x^3$$

$$6x^5 - 6x^3 - 9x^2 + 4x - 5$$

10 pts ea 3. Factor each expression.

a) $12x^2 + 8x - 28$

$$4(3x^2 + 2x - 7)$$

b) $15x^5 - 6x^3 + 9x^2$

$$3x^2(5x^3 - 2x + 3)$$