

**Topic:** Adding and subtracting polynomials**Question:** Simplify the expression.

$$(9x^2 - 2x) - (5x^2 - 8x - 3)$$

**Answer choices:**

- A  $-4x^2 + 5$
- B  $4x^2 + 6x + 3$
- C  $12x^2 - 7$
- D  $14x^2 - 10x + 15$



**Solution: B**

We have to distribute the subtraction across each term in the second polynomial.

$$(9x^2 - 2x) - (5x^2 - 8x - 3)$$

$$9x^2 - 2x - 5x^2 - (-8x) - (-3)$$

$$9x^2 - 2x - 5x^2 + 8x + 3$$

Now we'll group like terms in in descending order of their exponents, and then combine them by adding their coefficients.

$$9x^2 - 5x^2 - 2x + 8x + 3$$

$$(9 - 5)x^2 + (-2 + 8)x + 3$$

$$4x^2 + 6x + 3$$



**Topic:** Adding and subtracting polynomials**Question:** Simplify the expression.

$$(9x^3 + 4x^2 - 10x - 3) + (-2x^3 + 8x - 7x^2)$$

**Answer choices:**

A  $11x^3 - 11x^2 + 3x - 3$

B  $7x^3 - 3x^2 - 2x - 3$

C  $7x^3 - 3x^2 + 2x - 3$

D  $7x^3 - 11x^2 + 18x - 3$



**Solution: B**

We'll remove the parentheses,

$$(9x^3 + 4x^2 - 10x - 3) + (-2x^3 + 8x - 7x^2)$$

$$9x^3 + 4x^2 - 10x - 3 - 2x^3 + 8x - 7x^2$$

then group like terms together in descending order of their exponents,  
and then combine them by adding their coefficients.

$$9x^3 - 2x^3 + 4x^2 - 7x^2 - 10x + 8x - 3$$

$$(9 - 2)x^3 + (4 - 7)x^2 + (-10 + 8)x - 3$$

$$7x^3 - 3x^2 - 2x - 3$$



**Topic:** Adding and subtracting polynomials**Question:** Simplify the expression.

$$(4t^5 + t^3 - 4 + 3t^3 - 7t^2) - (5t^4 + 2t^5 - 2t^3 - 3t - 5)$$

**Answer choices:**

- A  $6t^5 - 5t^4 + t^3 - 7t^2 + 3t - 1$
- B  $6t^5 - 5t^4 + 6t^3 - 7t^2 + 3t + 1$
- C  $2t^5 - 5t^4 + 6t^3 - 7t^2 - 3t - 9$
- D  $2t^5 - 5t^4 + 6t^3 - 7t^2 + 3t + 1$



**Solution: D**

We have to distribute the subtraction across each term in the second polynomial.

$$(4t^5 + t^3 - 4 + 3t^3 - 7t^2) - (5t^4 + 2t^5 - 2t^3 - 3t - 5)$$

$$4t^5 + t^3 - 4 + 3t^3 - 7t^2 - 5t^4 - 2t^5 - (-2t^3) - (-3t) - (-5)$$

$$4t^5 + t^3 - 4 + 3t^3 - 7t^2 - 5t^4 - 2t^5 + 2t^3 + 3t + 5$$

Now we'll group like terms in in descending order of their exponents, and then combine them by adding their coefficients.

$$4t^5 - 2t^5 - 5t^4 + t^3 + 3t^3 + 2t^3 - 7t^2 + 3t - 4 + 5$$

$$(4 - 2)t^5 - 5t^4 + (1 + 3 + 2)t^3 - 7t^2 + 3t + (-4 + 5)$$

$$2t^5 - 5t^4 + 6t^3 - 7t^2 + 3t + 1$$

