

**Topic:** Adding and subtracting like terms**Question:** Simplify the expression.

$$4x + 2x + 8x - 4x$$

**Answer choices:**

- A       $8x$
- B       $4x$
- C       $2x$
- D       $10x$



**Solution: D**

For addition and subtraction, like terms are terms whose bases (variables) are the same and whose exponents are the same.

In other words, we can add  $2x^2$  and  $3x^2$ , because they both have base  $x$  and an exponent of 2, but we can't add  $2x^3$  and  $3x^4$ , because, while they have the same base  $x$ , they have different exponents.

Each term in the given expression has base  $x$  and an exponent of 1, so we can add all of the coefficients.

$$4x + 2x + 8x - 4x$$

$$(4 + 2 + 8 - 4)x$$

$$(6 + 8 - 4)x$$

$$(14 - 4)x$$

$$10x$$



**Topic:** Adding and subtracting like terms**Question:** Simplify the expression.

$$x + x + 3x + 4x + x$$

**Answer choices:**

A  $8x$

B  $7x + x^3$

C  $10x$

D  $9x$



**Solution: C**

We can rewrite the expression as

$$x + x + 3x + 4x + x$$

$$1x + 1x + 3x + 4x + 1x$$

$$(1 + 1 + 3 + 4 + 1)x$$

$$(10)x$$

$$10x$$



**Topic:** Adding and subtracting like terms**Question:** Simplify the expression.

$$2x + 7x + 4x^2 + 6x^2 + 10x$$

**Answer choices:**

- A  $10x + 9x^2$
- B  $19x + 10x^2$
- C  $-19x + 10x^2$
- D  $19x - 10x^2$



**Solution: B**

For addition and subtraction, like terms are terms whose bases (variables) are the same and whose exponents are the same.

In other words, we can add  $2x^2$  and  $3x^2$ , because they both have base  $x$  and an exponent of 2, but we can't add  $2x^3$  and  $3x^4$ , because, while they have the same base  $x$ , they have different exponents.

So we'll group the terms together in this expression that have a matching base and matching exponent.

$$2x + 7x + 4x^2 + 6x^2 + 10x$$

$$(2x + 7x + 10x) + (4x^2 + 6x^2)$$

Then we'll do the addition.

$$(19x) + (10x^2)$$

$$19x + 10x^2$$

