

A-APR.1: I can add and subtract polynomials.

1. Simplify the following expression

$$(6x^2y - 3xy) + (4 - 2xy)$$

$$6x^2y - 5xy + 4$$

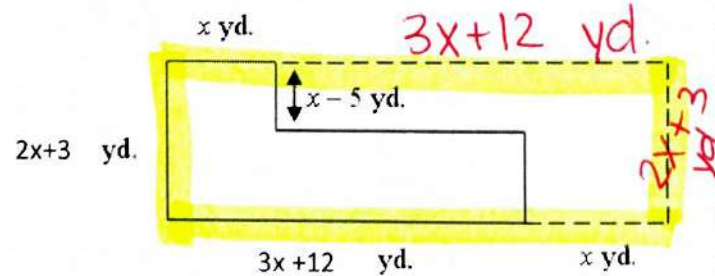
2. Simplify the following expression

$$(x^2 + 3x - 2) - (2x^2 - x + 1)$$

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

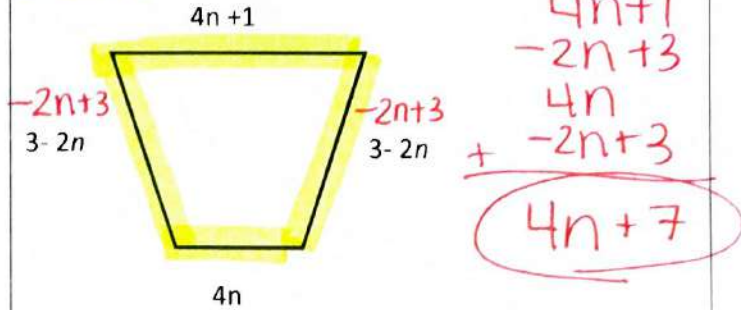
$$-1x^2 + 4x - 3$$

3. Estrella Elementary School has plans to double the area of their parking lot. The diagram below shows the shape of the new parking lot. Find an expression for the perimeter of the entire rectangular parking lot.



$$\begin{array}{r}
 2x+3 \\
 3x+12 \\
 1x \\
 2x+3 \\
 3x+12 \\
 + 1x \\
 \hline
 12x+30 \text{ yards}
 \end{array}$$

4. Write the simplified expression that represents the perimeter of the trapezoid below.



5. What is the first step in order to simplify the following expression $(a^3 + 2a^2 + 5) - (a^2 + 4a - 2)$?

- (a) Eliminate parenthesis; $a^3 + 2a^2 + 5 - a^2 + 4a - 2$
- (b) FOIL; $a^6 + 4a^4 - 2a^3 - 2a + 7$
- (c) Multiply like terms; $a^5 + 8a^3 + 10$
- (d) Distributive Property; $a^3 + 2a^2 + 5 - a^2 - 4a + 2$

6. The total revenue of a bulb company is modeled by the expression $-0.85x^2 - 1.64x + 2$, where x is the number of bulbs produced per week and the expression is in dollars. The total cost of producing x bulbs is modeled by the expression $0.07x^2 + 1.87x - 3$. What is the total profit earned by the company?

$$\begin{aligned}
 \text{Profit} &= (\text{Revenue}) - (\text{cost}) \\
 P &= (-.85x^2 - 1.64x + 2) - (.07x^2 + 1.87x - 3) \\
 &= -.85x^2 - 1.64x + 2 - .07x^2 - 1.87x + 3 \\
 &= -.92x^2 - 3.51x + 5
 \end{aligned}$$

- (A) $-.78x^2 - 3.51x + 5$
- (B) $-.92x^2 - 3.51x + 5$
- (C) $.78x^2 - 0.18x - 5$
- (D) $0.86x^2 - 3.81x - 5$

A-APR.1: I can multiply polynomials.

7. Expand the following expression $(4x - 3)(2x + 1)$

Multiply

	$4x^1$	-3	
$2x^1$	$8x^2$	$-6x$	$8x^2 + 4x - 6x - 3$
1	$4x$	-3	

$8x^2 - 2x - 3$
Answer

10. Simplify the following expression

$$(a^2b)(6a^2c^3)(a^2b^4)$$

$$(6)(a^2 \cdot a^2 \cdot a^2)(b^1 \cdot b^4)(c^3)$$

$$6a^6b^5c^3$$

8. Multiply $x^2 - 10$ and $x^2 - 2$, then simplify the expression.

	x^2	-10
x^2	x^4	$-10x^2$
-2	$-2x^2$	20

$$x^4 - 2x^2 - 10x^2 + 20$$

$$x^4 - 12x^2 + 20$$

11. Simplify. $(4a^2b)^2(a^5b^4)^3$

$$(4a^2b)(4a^2b)(a^5b^4)(a^5b^4)(a^5b^4)$$

$$(4 \cdot 4)(a^2 \cdot a^2 \cdot a^5 \cdot a^5 \cdot a^5)(b^1 \cdot b^1 \cdot b^4 \cdot b^4 \cdot b^4)$$

A $4a^6b^{15}$

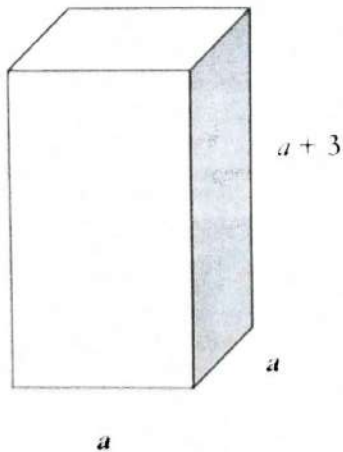
C $16a^9b^9$

B $16a^{19}b^{14}$

D $4a^7b^6$

9. Using the rectangular prism shown, select the factors of the expression to find the volume of the object.

- $a+3$
- a^2
- $2a$
- $(a+3)^2$



$$V = (\text{area of base})(\text{height})$$

$$V = (a \cdot a)(a+3)$$

$$V = (a^2)(a+3)$$

12. Suppose a rectangular table has a length of $2c + 7$ feet and a width of $3c$ feet. Write a simplified expression for the area of the table in square feet.

$$3c(2c + 7)$$

$6c^2$	$21c$
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$$6c^2 + 21c$$

square feet

A-SSE.1a: I can interpret parts of an expression.

13. Explain the meaning of the exponent in the algebraic expression $(a + b)^2$.
 $= (a+b)(a+b)$

- A Use the 2 as an exponent on both terms of the binomial
- B Add the binomial to itself 2 times
- C Use the 2 as a coefficient of the binomial
- D Multiply the binomial by itself 2 times

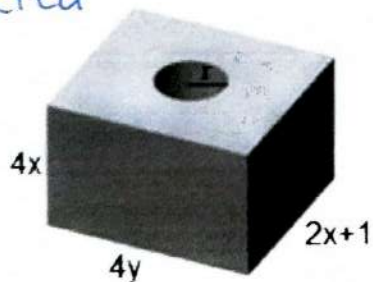
14. Explain why n^2 and $(2n - 3)$ are factors of the expression $n^2(2n - 3)$ and **not** terms of the expression.

Explanation: n^2 and $(2n-3)$ are factors because they are being multiplied, not added or subtracted.

15. Given the formula and image, determine the piece that is

removed: $(4x)(4y)(2x+1) - (4xr^2\pi)$

subtracted



- A $(4x)(4y)(2x+1)$
- B $4x$
- C $(4xr^2\pi)$
- D $(2x+1)$

16.

Part A:

Evaluate $x^3 + y^3$ and $(x + y)^3$ for $x = 3$ and $y = 2$.

* use PEMDAS to solve *

$x^3 + y^3$	$(x + y)^3$
$3^3 + 2^3$	$(3+2)^3$
(exponent) $27 + 8$	(add) $(5)^3$
(add) (35)	(exponent) (125)

Part B:

How is the order of the steps different for the two expressions?

The order of the steps is flipped because of PEMDAS.