1.) Simplify: $(2x + 3)(2x - 3) - (14x + 10)$

2.) Your starting salary at a new company is \$34,000 and it increase by 2.5% each year.
 A. Write an exponential growth function to represent this situation.

B. What will you salary be in 5 years? Round your answer to the nearest dollar.

3.) Simplify: $(4x^2)(3x^3)^4 - 6x^{14}$

# Exponent Rules

# *Graphic Organizer*

**Power Rule** $(x^a)^b = X^{ab}$

1.) $(x^2)^3 = X^6$

2.) $\boxed{(-2m^5)^2}\, m^3$

$4m^{10} \cdot m^3 = 4m^{13}$

## Binomial x Binomial

$(x + 3)(2x - 9)$

F $X \cdot 2X = 2X^2$

O $X \cdot -9 = -9X$

I $3 \cdot 2X = 6X$

L $3 \cdot -9 = -27$

$2X^2 - 3X - 27$

|        | $2x$      | $-9$      |
|--------|-----------|-----------|
| $x$    | $2x^2$    | $-9x$     |
| $+3$   | $6x$      | $-27$     |

$2x^2 - 3x - 27$

## Binomial Squared

F : $X \cdot X = X^2$
O : $X \cdot 3 = 3X$
I : $3 \cdot X = 3x$
L : $3 \cdot 3 = 9$

$(x + 3)^2$

$(X+3)(X+3) \rightarrow$ BOX OR FOIL

$X^2 + 6X + 9$

## Binomial x Trinomial

$(2x + 3)(x^2 + 3x - 6)$

|        | $x^2$     | $+3x$     | $-6$      |
|--------|-----------|-----------|-----------|
| $2x$   | $2x^3$    | $6x^2$    | $-12x$    |
| $+3$   | $3x^2$    | $9x$      | $-18$     |

$2x^3 + 9x^2 - 3x - 18$

# Why Couldn't the Chicken Find Her Egg?

#1 $(4x^2y^1)(2x^1y^2)$

$8x^3y^3$

#3 $(-4x^3y^1)(x^2y^2)(y^1)$

$-4 \cdot 1 \cdot 1 = -4$

$-4x^5y^4$

#18 $x^2(xy^3)^2 + y^2(x^2y^2)^2$

$x^2(x^2y^6) + y^2(x^4y^4)$

$x^4y^6 + x^4y^6 = 2x^4y^6$

# Formulas to Know and Love:

### Rectangle
$A = LW$
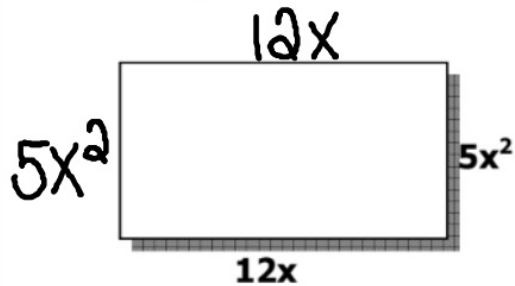$P = 2L + 2W$

### Trapezoid
$A = (1/2)h(b_1 + b_2)$

### Square
$A = s^2$
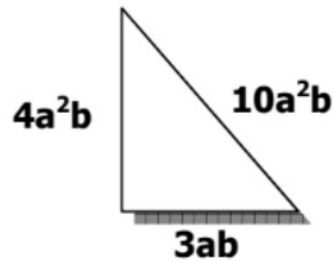
### Triangle
$A = (1/2)bh$

**1.** Find the **perimeter** and **area:**

$12x$

$5x^2$       $5x^2$

$12x$

**2.** Find the **perimeter** and **area:**

$4a^2b$     $10a^2b$

$3ab$

$P = 12x + 5x^2 + 12x + 5x^2$

$P = 10x^2 + 24x$

$A = (12x)(5x^2)$

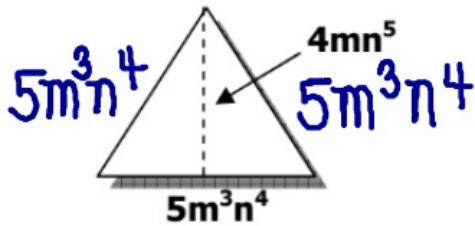$A = 60x^3$

$P = 4a^2b + 10a^2b + 3ab$

$P = 14a^2b + 3ab$

$A = \frac{1}{2}bh$

$A = \frac{1}{2}(3ab)(4a^2b)$

$A = \frac{1}{2}(12a^3b^2)$

$A = 6a^3b^2$

**3.** Find the **perimeter** and **area**:
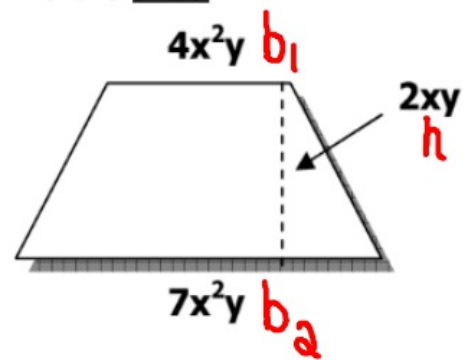
$5m^3n^4$    $4mn^5$    $5m^3n^4$

$5m^3n^4$ (base)

$P = 5m^3n^4 + 5m^3n^4 + 5m^3n^4$

$P = 15m^3n^4$

$A = \frac{1}{2}(5m^3n^4)(4mn^5)$

$A = \frac{1}{2}(20m^4n^9)$

$A = 10m^4n^9$

**4.** Find the **area**:

$4x^2y$   $b_1$    $2xy$   $h$    $7x^2y$   $b_2$

$A = \frac{1}{2}h(b_1 + b_2)$

$A = \frac{1}{2}(2xy)(4x^2y + 7x^2y)$

$A = \frac{1}{2}(2xy)(11x^2y)$

$A = 11x^3y^2$

$5x + 2$

$5x + 4$

Rectangle
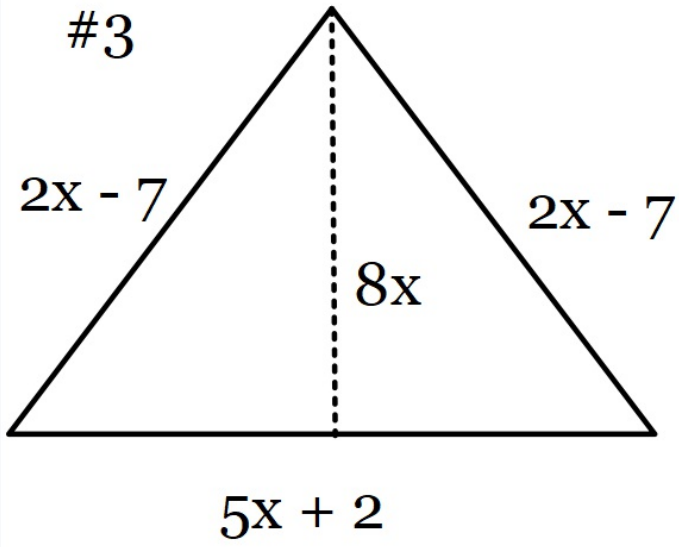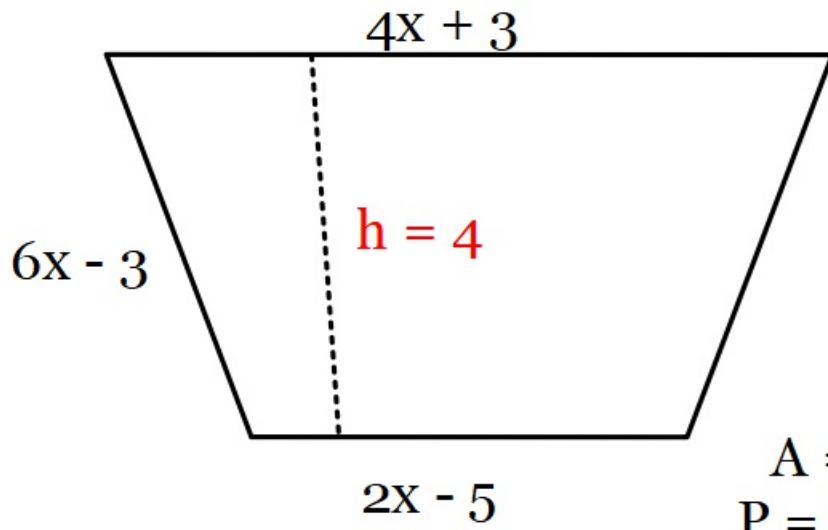
$A = LW$

$P = 2L + 2W$

#3

2x - 7

8x

2x - 7

5x + 2

Triangle
A = (1/2) bh
P = Sum of all 3 sides

4x + 3

6x - 3

$h = 4$

2x - 5

Trapezoid
$A = (1/2)h(b_1 + b_2)$
P = Sum of all 4 sides

Find the area of the shaded region.

$2x + 5$

$x + 3$

$x - 3$

$x + 1$