Expressions

① Translating Phrases into Algebraic Expressions

   a.   eight less than twice a number $2n - 8$

        three fourths of a number increased $\frac{3}{4}n + \frac{5}{6}$
        by five sixths

   c.   double the sum of a number $2(n + 3)$
        and three.

② Collecting (or grouping) Like Terms

   ★ – look for "matching" variables
      – coefficients can be different
   ★ – exponent must match

7: coefficent
n: variable
²: exponent
-3: constant

$$7n^2 - 3$$

Term   Term
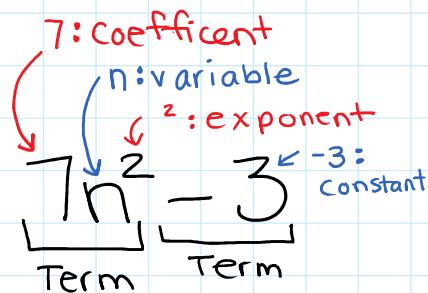
a. Identify the like terms

  1. $\boxed{7x}$ $-y$ y^2 3 $\boxed{x}$ $\boxed{2x}$ $7x^2$

  2. mn $\boxed{n^2}$ $\boxed{-n^2}$ m^2 $3m$

  3. $2x$ $\boxed{2y}$ $-x^2$ $\boxed{3y}$ $4y^2$

b. Collect like terms:

  a. $3c + 4d - c + 2d$
      $3c - 1c$ $4d + 2$
      $2c + 6d$

 b. $17z + 12a + L - 4z - 6a$

      $17z - 4z + 12a - 6a + L$

$$13z + 6a + L$$

c. $-8f + n - 2f - n$

$$-8f - 2f \quad + n - n$$

$$-10f$$

d. $9n + 3m - 2n + 7m$

$$9n - 2n \quad + 3m + 7m$$

$$7n + 10m$$

e. $2x^2 - 4x - 5x^2 + 7x$

$$2x^2 - 5x^2 \quad - 4x + 7x$$

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

③ Find the Perimeter:

a.

4 5 3 5

$$P = 4 + 3 + 5 + 5 = \boxed{17}$$

b.

n h 2n 2n 3n

$$P \quad 2n + 3n + 2n + n + n = \boxed{9n}$$

c.

$2x \quad 3 + x$

$$P = x + 3 + 2 + x + 3 + x + 2x$$

c.
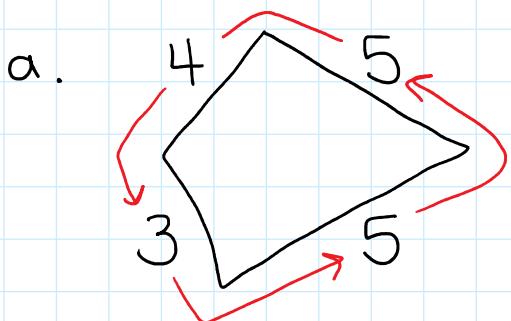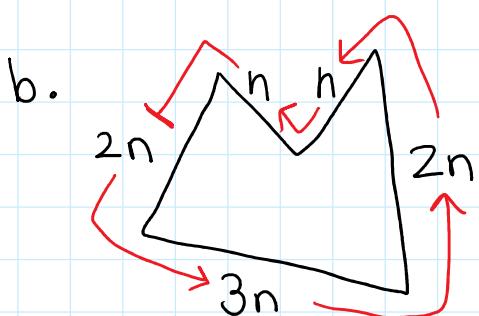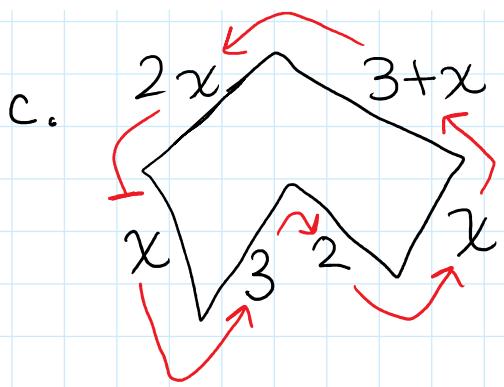
$$P = x + 3 + 2 + x + 3 + x + 2x$$

$$x + x + x + 2x \quad + 3 + 2 + 3$$

$$5x + 8$$

④ Distribution with Expressions

MULTIPLY

a. $3(n + 2) \Rightarrow 3n + 6$

3 is "shared" with everything in the brackets!

Multiplying aka distributing

b. $5(x + 4) \Rightarrow 5x + 20$

c. $-2(7 + m) \Rightarrow -14 - 2m$

⑤ Subsitution with Expressions

a. in $3n + 2$ use $n = 5$

$$3(5) + 2$$
$$15 + 2$$
$$\boxed{17}$$

b. in $4f - 6$ use $f = 10$

$$4(10) - 6$$
$$40 - 6$$

(34)

c. in $3x - 2y$ use $x = 5$ and $y = -3$

$3(5) - 2(-3)$ *double check
$15 + 6$ in your calc!

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