2.5: Apply the Distributive Property

Goals: *Identify terms, like terms, coefficients and constants of an expression
*Apply the distributive property
*Distribute a negative number
*Use the distributive property to simplify an expression

Distributive Property: $a(b + c) =$ $a(b - c) =$

$(b + c)a =$

Simplify:

Ex: $4(y + 3)$ **Ex:** $(y + 7)y$ **Ex:** $n(n - 9)$

Ex: $(2 - n)8$ **Ex:** $(2n + 6)\left(\frac{1}{2}\right)$

Simplify:

Ex: $-2(x + 7)$ **Ex:** $(5 - y)(-3y)$ **Ex:** $-(2x - 11)$

Term:

Ex: Identify the terms in the expression: $3x - 4 - 6x + 2$

Coefficient:

Ex: Identify the coefficients in the expression: $3x - 4 - 6x + 2$

Constants:

Ex: Identify the constants in the expression: $3x - 4 - 6x + 2$

Like Terms:

Ex: Identify the like terms in the expression: $3x - 4 - 6x + 2$

Simplify:

Ex: $2(x + 8) + 4(x - 3)$

Ex: $4(n + 9) - 3(2 + n)$

Ex: $8(x + 3) - 2(8 + x)$

Ex: Your daily workout consists of a total of 50 minutes of running and swimming. You burn 15 calories per minute running and 9 calories per minute when swimming. Let r be the number of minutes that you run.

a) Write a variable expression to represent the total number of calories burned both running and swimming, based only on r, the number of minutes you run.

b) If you run for 20 minutes, how many calories would you burn during your exercise session?

Ex: During the summer you give one-hour saxophone lessons to 20 students each week. For a beginner student, the rate you charge is $20 for each hourly lesson, and for an advanced student, the rate you charge is $35 for each hourly lesson.

a) Write an equation to represent your total weekly earnings, *y*, as a function of *x*, the number of beginning students that you teach.

b) Find your weekly earnings if 15 of your 20 students are beginners.

c) Suppose you plan to teach for 10 weeks and want to earn $4000. How many advanced students do you need to teach?

Simplify each expression:

Ex: $\frac{36x-24}{6}$

Ex: $\frac{40x+32}{8}$

Ex: $\frac{2x-8}{-4}$

Ex: $\frac{-6y+18}{3}$

Ex: $\frac{-10z-20}{-5}$