

Lesson 5-1 "Applying Properties of Operations" p. 51

LT: I will identify properties of operations

I will apply properties of operations to simplify linear expressions

vocab: property, numerical expression, numerical statement
 rule - always true $\rightarrow 12+0$ $\rightarrow 2$ num. expressions $12+0 = 0+12$

Questions

Answers

① what are the properties?
 see attached handout chart.

Property	Example
Additive Identity Property	$12 + 0 = 0 + 12 = 12$
Multiplicative Identity Property	$5 \times 1 = 1 \times 5 = 5$
Commutative Property of Addition	$7 + 3 = 3 + 7$
Commutative Property of Multiplication	$20 \times 4 = 4 \times 20$
Associative Property of Addition	$(9 + 4) + 17 = 9 + (4 + 17)$
Associative Property of Multiplication	$(10 \times 5) \times 3 = 10 \times (5 \times 3)$
Additive Inverse Property	$6 + (-6) = 0$
Multiplicative Inverse Property	$4\left(\frac{1}{4}\right) = 1$

L5-2 "Applying Properties to Factor & Expand" p. 54

LT: I will apply properties to factor & expand linear expressions.

vocab: factor, distribute

multiplied 3×2 \rightarrow to give equally

Questions

Answers

① What is the Distributive Property?

For Addition: **Expand** an expression $\rightarrow a(b+c) = ab+ac$
 $\rightarrow (b+c)a = ab+ac$

Same for subtraction

Factor an expression $\rightarrow ab+ac = a(b+c)$
 take out what's common
 $\rightarrow ba+ca = (b+c)a$

② How to Distribute?

Step 1: Distribute (multiply) to each in ()
 2: Combine like terms

ex) $5(x+2)$

$5 \cdot x + 5 \cdot 2$

$5x + 10$

← can't combine not same species

③ How to Factor?

Step 1: Determine GCF (greatest common factor)
 2: \div by GCF
 3: put GCF on outside of ()

ex) $2a - 10 = \frac{2}{10} \div \frac{2}{2} =$ (GCF?)

$\frac{2a}{2} - \frac{10}{2} \rightarrow 1a - 5$

$2(a-5) =$

GCF or common factor

L5-2 cont... "Combine Like Terms" p.55

WC: like terms

$-2x, x, 3x, \frac{1}{2}x$ ← all "x" family

$2, 3, -2, -\frac{1}{2}$ ← all # family

$g, 2g, -\frac{1}{2}g$ ← all "g" family

} can only combine "like" family terms

A) Combining like terms

ex) $\underline{3n} + \underline{2n} =$

↓ ↓

$3 + 2 = \boxed{5n}$ There's 5 n's

ex) $2n + 7n + n =$ ← when no # in front of variable means there's one of that

↓ ↓ ↓

$2 + 7 + 1 = \boxed{10n}$

ex) $\underline{12f} + \underline{3n} + \underline{2f} =$

12 + 2 = 14f Then bring n-family down

↓

$\boxed{14f + 3n}$ DONE!!

can't combine f & n families.

ex) $\underline{10n} + \underline{3f} + \underline{n} + \underline{5} =$

10n + n

↓ ↓

10 + 1

↓

$\boxed{11n + 3f + 5}$ Done!

B) Distributive formula + Combine

$$\begin{aligned} \text{ex) } 2(n+6) + 9 &= \\ 2(n) + 2(6) + 9 & \\ 2n + 12 + 9 & \\ \boxed{2n + 21} & \text{ Done} \end{aligned}$$

$$\begin{aligned} \text{ex) } x(2+3) &= \\ 2(x) + 3(x) &= \\ 2x + 3x &= \\ \boxed{5x} & \text{ 😊} \end{aligned}$$

$$\begin{aligned} \text{ex) } 5(p+9) - 3 &= \\ 5p + 45 - 3 &= \\ \boxed{5p + 42} & \end{aligned}$$

$$\begin{aligned} \text{ex) } 2(n-6) + 9 &= \\ 2n - 12 + 9 & \\ 2n - 12 + 9 & \\ 2n - 3 & \\ \boxed{2n - 3} & \end{aligned} \quad \left. \begin{array}{l} -12 + 9 \\ -3 \end{array} \right\} \text{integer rule}$$