

11-21-18

Aim: SWBAT use properties to justify the steps when simplifying an expression.

HW: Packet Page 26

Test Wednesday 11/28

Do Now: Correct hw

HOMEWORK

Simplify each expression.

1) $15x + \frac{1}{8}(64x - 32) + 30$

$$15x + 8x - 4 + 30$$

$$23x + 26$$

3) $20x + \frac{3}{10}(-70x + 100) + 57$

$$20x - 21x + 30 + 57$$

$$-x + 87$$

5) $-\frac{1}{4}(24x - 36) - 8x - 15$

$$-6x + 9 - 8x - 15$$

$$-14x - 6$$

7) $\frac{2}{3}(18x - 27) + 6x - 4$

$$12x - 18 + 6x - 4$$

$$18x - 22$$

2) $0.5(28x + 30) + 13x + 31$

$$14x + 15 + 13x + 31$$

$$27x + 46$$

4) $\frac{1}{5}(25x + 50) - 7x + 21$

$$5x + 10 - 7x + 21$$

$$-2x + 31$$

6) $0.3(2x + 7) - 5x + 3.1$

$$0.6x + 2.1 - 5x + 3.1$$

$$-4.4x + 5.2$$

8) $-5x + \frac{1}{6}(60x - 36) - 9$

$$-5x + 10x - 6 - 9$$

$$5x - 15$$

9) $13x + 26$ _____

10) $25xy + 55x$ _____

<p><i>terms places switch</i></p> <p>Commutative Property $x + 5 = 5 + x$</p> <p>Distributive Property</p>	<p>Associative Property $(2 + 3) + 5 = 2 + (3 + 5)$</p> <p>Combine Like Terms</p>
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same order regrouping

$5(x + 2) = 5x + 10$

$2x + 3x = 5x$

$4 + 1 = 5$

CLASSWORK:

While you might not realize it, you are using your properties (Associative, Commutative, Distributive, etc.) when you simplify an expression. It is important to understand each step and why you are allowed to do it. We call this **justifying our steps**.

Simplify the expression: $(11k + 5) + (2k + 13)$ * Justify each step*

$11k + 5 + 2k + 13$

The Distributive Property

$11k + 2k + 5 + 13$

Commutative Property (allows us to switch the order of the terms)

$(11k + 2k) + (5 + 13)$

Associative Property (allows us to switch the grouping of the terms)

$13k + 18$

Combine like terms (allows us to add $11k$ and $2k$ as well as 5 and 13)

1) The following expression is simplified below: $4s + 5r - 3s + 4r$ * Justify each step*

$4s + 5r - 3s + 4r$

The Original Expression

$4s - 3s + 5r + 4r$

Commutative Property

$(4s - 3s) + (5r + 4r)$

Associative Property

$s + (5r + 4r)$

Combine Like Terms

$s + 9r$

Combine Like Terms

Aim: SWBAT use properties to justify the steps when simplifying an expression.

Do Now:

Factor each expression. Write CANNOT BE FACTORED, if the expression cannot be factored.

- | | | | |
|------------------|-------|------------------|-------|
| 1) $3c + 6d$ | _____ | 2) $3ab + 7a$ | _____ |
| 3) $24x + 48y$ | _____ | 4) $4x + 18y$ | _____ |
| 5) $4x + 28$ | _____ | 6) $9x + 15$ | _____ |
| 7) $22xy + 26xz$ | _____ | 8) $15x + 28y$ | _____ |
| 9) $13x + 26$ | _____ | 10) $25xy + 55x$ | _____ |

<p><i>terms switched places</i></p> <p>Commutative Property $x + 3 = 3 + x$</p>	<p>Associative Property $(2 + 3) + 5 = 2 + (3 + 5)$ <i>same order</i></p>
<p>Distributive Property</p>	<p>Combine Like Terms <i>* regrouping</i></p>

CLASSWORK: $3(x + 5) = 3x + 15$ $5x + 4x = 9x$ $3 + 7 = 10$

While you might not realize it, you are using your properties (Associative, Commutative, Distributive, etc.) when you simplify an expression. It is important to understand each step and why you are allowed to do it. We call this **justifying our steps**.

Simplify the expression: $(11k + 5) + (2k + 13)$ * Justify each step*

- | | |
|-------------------------|---|
| $11k + 5 + 2k + 13$ | The Distributive Property |
| $11k + 2k + 5 + 13$ | Commutative Property (allows us to switch the order of the terms) |
| $(11k + 2k) + (5 + 13)$ | Associative Property (allows us to switch the grouping of the terms) |
| $13k + 18$ | Combine like terms (allows us to add $11k$ and $2k$ as well as 5 and 13) |

1) The following expression is simplified below: $4s + 5r - 3s + 4r$ * Justify each step*

- | | |
|-------------------------|-----------------------------|
| $4s + 5r - 3s + 4r$ | The Original Expression |
| $4s - 3s + 5r + 4r$ | <u>Commutative Property</u> |
| $(4s - 3s) + (5r + 4r)$ | <u>Associative Property</u> |
| $s + (5r + 4r)$ | <u>Combine Like Terms</u> |
| $s + 9r$ | <u>Combine Like Terms</u> |

2) The following expression is simplified below: $5(4m + n) - 2n$ * Justify each step*

$5(4m + n) - 2n$	The Original Expression
$20m + 5n - 2n$	_____
$20m + (5n - 2n)$	_____
$20m + 3n$	_____

3) The following expression is simplified below: $7x - 2 + 7x + 6$ * Justify each step*

$7x - 2 + 7x + 6$	The Original Expression
$7x + 7x - 2 + 6$	_____
$(7x + 7x) - 2 + 6$	_____
$14x - 2 + 6$	_____
$14x(-2 + 6)$	_____
$14x + 4$	_____

Simplify the expression. ~~Then, factor the answer.~~

4) $6x + 3x + 15y + 12y$

5) $8d - 2(3d - 4) + 2$

6) $-8(2a - 3b) - 5(6b - 4a)$

7) $10(5g + 2h - 3) - 4(3g - 4h + 2)$

2) The following expression is simplified below: $5(4m + n) - 2n$ * Justify each step*

$$5(4m + n) - 2n$$

$$20m + 5n - 2n$$

$$20m + (5n - 2n)$$

$$20m + 3n$$

The Original Expression

Distributive Property
Associative Property
Combine Like Terms

3) The following expression is simplified below: $7x - 2 + 7x + 6$ * Justify each step*

$$7x - 2 + 7x + 6$$

$$7x + 7x - 2 + 6$$

$$(7x + 7x) - 2 + 6$$

$$14x - 2 + 6$$

$$14x (-2 + 6)$$

$$14x + 4$$

The Original Expression

Commutative Property
Associative Prop.
Combine Like Terms
Associative
Combine Like Terms

Simplify the expression. Then, factor the answer.

4) $6x + 3x + 15y + 12y$

$$9x + 27y$$

5) $8d - 2(3d - 4) + 2$

$$8d - 6d + 8 + 2$$

$$2d + 10$$

* 6) $-8(2a - 3b) - 5(6b - 4a)$

$$-16a + 24b - 30b + 20a$$

$$4a - 6b$$

7) $10(5g + 2h - 3) - 4(3g - 4h + 2)$

$$50g + 20h - 30 - 12g + 16h - 8$$

$$38g + 36h - 38$$