

UNIT 1: SIMPLIFY EXPRESSIONS

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Objectives: I can use the distributive property with numerical and variable expressions.

Distributive Property with Mental Math

Notes

You can use the distributive property to help with mental math.

$$6(31) \\ 6(30 + 1) \\ \underline{180 + 6} \\ 186$$

$$7(49) \\ 7(50 - 1) \\ \underline{350 - 7} \\ 343$$

$$9(102) \\ 9(100 + 2) \\ \underline{900 + 18} \\ 918$$

$$3(88) \\ 3(90 - 2) \\ \underline{270 - 6} \\ 264$$

Represent the highlighted number as a sum or a difference.

Practice

Use the distributive property to solve with mental math.

$$1. 5(39) \\ 5(40 - 1) \\ \underline{200 - 5} \\ 195$$

$$2. 7(51) \\ 7(50 + 1) \\ \underline{350 + 7} \\ 357$$

$$3. 4(38) \\ 4(40 - 2) \\ \underline{160 - 8} \\ 152$$

$$4. 9(62) \\ 9(60 + 2) \\ \underline{540 + 18} \\ 558$$

The order of multiplication can be reversed!

* Note $2 \times 3 = 3 \times 2$

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Notes

You can use the distributive property to multiply mixed numbers.

$$12(2\frac{1}{3}) \\ 12(2 + \frac{1}{3}) \\ \underline{24 + 4} \\ 28$$

$$12(2) + \frac{1}{3}(12)$$

$$5(3\frac{2}{11}) \\ 5(3 + \frac{2}{11}) \\ \underline{15 + \frac{10}{11}} \\ 15\frac{10}{11}$$

$$5 \cdot 2 \\ 1 \cdot 10$$

$$7(5\frac{2}{7}) \\ 7(5 + \frac{2}{7}) \\ \underline{7(5) + 7(\frac{2}{7})} \\ 35 + 2 \\ 37$$

$$4(5\frac{1}{2}) \\ 4(5 + \frac{1}{2}) \\ \underline{4(5) + \frac{1}{2} \cdot 4} \\ 20 + 2 \\ 22$$

Practice

Use the distributive property to multiply mixed numbers.

Practice

Use the distributive property to multiply mixed numbers..

1. $8(2\frac{1}{4})$

$8(2 + \frac{1}{4})$
 $8(2) + 8(\frac{1}{4})$
 $16 + 2 = 18$

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2. $3(4\frac{3}{10})$

$3(4 + \frac{3}{10})$
 $3(4) + 3(\frac{3}{10})$
 $12 + \frac{9}{10} = 12\frac{9}{10}$

$12\frac{9}{10}$

3. $2(7\frac{2}{5})$

$2(7 + \frac{2}{5})$
 $2(7) + 2(\frac{2}{5})$
 $14 + \frac{4}{5}$
 $14\frac{4}{5}$

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Combining Like Terms and The Distributive Property

The following examples involve both the Distributive Property and combining like terms.

$5(2x + 8) - 7$

$10x + 40 - 7$

$10x + 33$

1st: Distribute the # outside the () just to the terms inside the ()

2nd: Combine like terms

$4 + 2(-x - 8)$

$4 + (-2x) - 16$

$-2x + 4 + (-16)$

$-2x + (-12)$

$-3(5x - 9y) + 15x$

$-15x + (+27y) + 15x$

$-15x + 15x + 27y$

$27y$

Phatness, yo!

