

# M8 6.5 Solving Equations Involving the Distributive Property

Name \_\_\_\_\_

Blk \_\_\_\_\_

Review

## The Distributive Property

Integers

$$3 \times 6 = 3(5+1) = \underbrace{(3 \times 5)}_{15} + \underbrace{(3 \times 1)}_3 = 18$$

Algebra

$$5(x-7) = 5x - 35 \qquad \begin{array}{r} x \quad -7 \\ 5 \overline{) 5x - 35} \end{array}$$

Array Model (Better)

$$3(c+9) \rightarrow \begin{array}{r} c \quad +9 \\ 3 \overline{) 3c + 27} \end{array} \qquad 3c + 27$$

New

Applying the Distributive Property to solve Algebraic Equations!

Ex 1

Bob is planting trees. He needs 11 trees for the sides of his yard. He wants all the extra trees for the middle. Trees cost \$12 each and Bob has \$336. How many trees can he get for the middle section?

1) Let  $m$  = middle trees

2) Write Equation: solve

$$12(m+11) = 336 \qquad \begin{array}{r} m \quad +11 \\ 12 \overline{) 12m + 132} \end{array}$$

3) Check!

$$12(17+11) = 336$$

$$12(28) = 336$$

$$\boxed{336 = 336}$$

$$\begin{array}{r} 12m + 132 = 336 \\ -132 \quad -132 \\ \hline \end{array}$$

$$\begin{array}{r} 12m \quad = 204 \\ \div 12 \quad \div 12 \end{array}$$

$$m = 17$$

**Bob can get 17 trees for the middle**

Ex 2 Solve  $14 = 3(x+4)$

1) apply distributive property (d.p.)

$$14 = 3(x+4)$$

$$3 \overline{) \begin{array}{r} x \quad +4 \\ 3x \quad +12 \end{array}}$$

2) Solve w/ Algebra

$$\begin{array}{r} 14 = 3x + 12 \\ -12 \quad -12 \\ \hline \end{array}$$

$$\begin{array}{r} 2 = 3x \\ :3 \quad :3 \end{array}$$

$$\boxed{\frac{2}{3} = x}$$

$$\text{or } \boxed{0.6\bar{6} = x}$$

↳ more accurate

3) check

$$14 = 3\left(\frac{2}{3} + 4\right)$$

$$14 = 3\left(4\frac{2}{3}\right) \rightarrow \frac{14}{3}$$

$$14 = 3\left(\frac{14}{3}\right) \quad \frac{3 \cdot 14}{3}$$

$$\boxed{14 = 14} \checkmark$$

HW

A  
4,5

B  
6,8,17

C  
9,10,14

Ex 3 Solve  $-2(10 - p + 1) = -21$

1) apply d.p.  $-2 \overline{) \begin{array}{r} 10 \quad -p \quad +1 \\ -20 \quad +2p \quad -2 \end{array}}$

2) Algebra  $-20 + 2p - 2 = -21$

$$\begin{array}{r} -2 + 2p = -21 \\ +22 \quad +22 \end{array}$$

$$\begin{array}{r} 2p = 1 \\ :2 \quad :2 \end{array}$$

$$\boxed{p = \frac{1}{2} \text{ or } 0.5}$$

3) check

$$-2\left(10 - \frac{1}{2} + 1\right) = -21$$

$$-2(10.5) = -21$$

$$\boxed{-21 = -21} \checkmark$$