

# Mathematics Grade 7

Grade 7

Date

No.

## Algebraic Expressions & Algebraic Equation

Solving equation involving the additive inverse.

Example 1

Solve each of the following equation.

(a)  $x + 5 = 1$    (b)  $y - 8 = 17$    (c)  $a + 3 = -2$    (d)  $m - 6 = -9$

Solution

(a)  $x + 5 = 1$   
 $x = 1 - 5$   
 $x = -4$

(c)  $a + 3 = -2$   
 $a = -2 - 3$   
 $a = -5$

(b)  $y - 8 = 17$   
 $y = 17 + 8$   
 $y = 25$

(d)  $m - 6 = -9$   
 $m = -9 + 6$   
 $m = -3$

1. Solve the following equations.

(a)  $x + 5 = 9$

(b)  $z + 2 = 18$

(c)  $y + 7 = -3$

(d)  $m + 13 = -14$

2. Solve the following equations.

(a)  $x - 6 = 15$

(b)  $z - 24 = 19$

(c)  $m - 14 = 18$

(d)  $u - 9 = -7$

# Solving equations involving the multiplication inverse.

Example 1

Solve the following equation:

(a)  $4a = -16$  (b)  $\frac{b}{5} = 12$  (c)  $-2x = 8$  (d)  $\frac{-m}{4} = 3$

Solution

(a)  $4a = -16$

$$a = \frac{-16}{4}$$

$$a = -4$$

(b)  $\frac{b}{5} = 12$

$$b = 12 \times 5$$

$$b = 60$$

(c)  $-2x = 8$

$$x = \frac{8}{-2}$$

$$x = -4$$

(d)  $\frac{-m}{4} = 3$

$$-m = 3 \times 4$$

$$-m = 12$$

$$m = \frac{12}{-1}$$

$$m = -12$$

1. Solve the following equations.

(a)  $3x = 24$

(b)  $5m = 100$

(c)  $19y = 38$

(d)  $2z = -5$

Solving equation involving more than one operation

Example 1

Solve the following equation.

(a)  $2x - 6 = 14$       (b)  $\frac{x}{3} + 5$

Example 2

Solve the following equation

(a)  $2x - 6 = 14$       (b)  $\frac{x}{3} + 5 = -7$       (c)  $-4s - 9 = 11$

Solution

(a)  $2x - 6 = 14$       (b)  $\frac{x}{3} + 5 = -7$

$$2x = 14 + 6$$

$$2x = 20$$

$$x = \frac{20}{2}$$

$$x = 10$$

$$\frac{x}{3}$$

$$\frac{x}{3} = -7 - 5$$

$$\frac{x}{3} = -12$$

$$x = -12 \times 3$$

$$x = -36$$

(c)  $-4s - 9 = 11$

$$-4s = 11 + 9$$

$$-4s = 20$$

$$s = \frac{20}{-4}$$

$$s = -5$$

1. Solve the following equations.

(a)  $3x + 6 = 13$

(b)  $-2x + 7 = 1$

(c)  $4y - 15 = 10$

(d)  $4 - a = 11$

(e)  $-7y - 24 = -3$

(f)  $-3z - 12 = -17$

Solving equation involving brackets (in form of  $m(n+a)=b$ )

Example 1

Solve the following equations:

(a)  $5(a+7)=15$       (b)  $-3(m-2)=9$

Solution

(a)  $5(a+7)=15$

$$5a + 35 = 15$$

$$5a = 15 - 35$$

$$5a = -20$$

$$a = \frac{-20}{5}$$

$$a = -4$$

(b)  $-3(m-2)=9$

$$-3m + 6 = 9$$

$$-3m = 9 - 6$$

$$-3m = 3$$

$$m = \frac{3}{-3}$$

$$m = -1$$

Solve the following equations:

(a)  $3(x+2)=12$

(b)  $7(x-5)=35$

(c)  $3(-+7)=-3$

(d)  $2(x-2)=10$