

Math 9 – Unit 3: Solving Equations

Lesson #3: Solving with Brackets

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Learning Goal: We are learning to solve equations that contain brackets.

The next layer to solving equations is to have brackets in the equations. With brackets, you first need to expand (using the **Distributive Property**), simplify, then use the skills from the last two lessons to solve. Here we go!!

a) $2(x-3) = 2$

$$2x - 6 = 2$$
$$\frac{2x}{2} = \frac{8}{2}$$
$$x = 4$$

b) $3(y+2) = -9$

$$3y + 6 = -9$$
$$\frac{3y}{3} = \frac{-15}{3}$$
$$y = -5$$

c) $2(3p+4) = 14$

$$3p + 4 = 7$$
$$3p = 3$$
$$p = 1$$

d) $-24 = 4(h+3)$

$$-6 = h + 3$$
$$-9 = h$$

e) $3(m+1) + 10 = 8 - 2m$

$$3m + 3 + 10 = 8 - 2m$$
$$\frac{5m}{5} = \frac{-5}{5}$$
$$m = -1$$

f) $8 - 3x = 4(x-3) + 6$

$$8 - 3x = 4x - 12 + 6$$
$$\frac{14}{7} = \frac{7x}{7}$$
$$2 = x$$

$$g) 5(2x-3) = 2(x-2) + 5$$

$$10x - 15 = 2x - 4 + 5$$

$$\frac{8x}{8} = \frac{16}{8}$$

$$x = 2$$

$$h) 4(d+7) = -44 + 2(d+6)$$

$$4d + 28 = -44 + 2d + 12$$

$$\frac{2d}{2} = \frac{-60}{2}$$

$$d = -30$$

$$i) 4(n-2) - (n+3) = n-1$$

$$4n - 8 - n - 3 = n - 1$$

$$3n - 11 = n - 1$$

$$\frac{2n}{2} = \frac{10}{2}$$

$$n = 5$$

$$j) 4(k-7) - 2(k+3) = -15k$$

$$4k - 28 - 2k - 6 = -15k$$

$$2k - 34 = -15k$$

$$\frac{-34}{-17} = \frac{-17k}{-17}$$

$$2 = k$$

$$k) 3(2x+1) - (x-2) = 2(x+4)$$

$$6x + 3 - x + 2 = 2x + 8$$

$$5x + 5 = 2x + 8$$

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

$$x = 1$$

Success Criteria:

- I can use the distributive property to eliminate brackets, then solve the equation normally