

Worksheet 4-13: Solving Equations with Brackets**Step 1:** Expand the brackets by **multiplying****Step 2:** Move the number over by **adding or subtracting****Step 3:** Isolate the variable by **dividing or multiplying**

Steps	English
<p>1. <math>2(x + 5) = 18</math></p> $2x + 10 = 18$ $2x + 10 - 10 = 18 - 10$ $2x = 8$ $\frac{2x}{2} = \frac{8}{2}$ $x = 4$	<p><b>Step 1:</b> Expand the brackets by multiplying 2 into the brackets.</p> <p><b>Step 2:</b> Isolate <math>2x</math> by subtracting 10 from both sides.</p> <p><b>Step 3:</b> Isolate <math>x</math> by dividing both sides with 2.</p>
<p>2. <math>3(x - 4) = 18</math></p> $3x - 12 = 18$ $3x - 12 + 12 = 18 + 12$ $3x = 30$ $\frac{3x}{3} = \frac{30}{3}$ $x = 10$	<p><b>Step 1:</b> Expand the brackets by multiplying 3 into the brackets.</p> <p><b>Step 2:</b> Isolate <math>3x</math> by adding 12 to both sides.</p> <p><b>Step 3:</b> Isolate <math>x</math> by dividing both sides with 3.</p>
<p>3. <math>-4(2y - 3) = -20</math></p> $-8y + 12 = -20$ $-8y + 12 - 12 = -20 - 12$ $-8y = -32$ $\frac{-8y}{-8} = \frac{-32}{-8}$ $y = 4$	<p><b>Step 1:</b> Expand the brackets by multiplying <math>-4</math> into the brackets.</p> <p><b>Step 2:</b> Isolate <math>-8y</math> by subtracting 12 from both sides.</p> <p><b>Step 3:</b> Isolate <math>x</math> by dividing both sides with <math>-8</math>.</p>

Steps	English
4. $6(x + 3) = 42$	Step 1: _____ _____ Step 2: _____ _____ Step 3: _____ _____
5. $5(y - 4) = 15$	Step 1: _____ _____ Step 2: _____ _____ Step 3: _____ _____
6. $-3(m + 11) = 6$	Step 1: _____ _____ Step 2: _____ _____ Step 3: _____ _____

Answers: 4.  $x = 4$ ; 5.  $y = 7$ ; 6.  $m = -13$

Steps	English
7. $-2(n+9)=10$	Step 1: _____ _____ Step 2: _____ _____ Step 3: _____ _____
8. $2(7n+9)=-10$	Step 1: _____ _____ Step 2: _____ _____ Step 3: _____ _____
9. $5(2y-3)=15$	Step 1: _____ _____ Step 2: _____ _____ Step 3: _____ _____

Answers: 7.  $n=-14$ ; 8.  $n=-2$ ; 9.  $y=3$

Solve each equation.

1.  $3(x + 2) = 12$

2.  $2(u + 7) = 2$

3.  $5(a - 8) = 30$

4.  $16 = 8(z - 5)$

5.  $-3(m - 2) = 48$

6.  $35 = -7(a + 3)$

7.  $6y = 4(y + 8)$

8.  $2(m + 3) + 9 = -11$