Solving Two-Step Equations

Identify each part of the equations. Circle any coefficient, underline any constant, and box any variable.

 90x – 15 = -465 -12 + 3y = 21 -75 = 3(x + 30) 2y + 5 = -3y + 40

**Throwback: One-Step Equations Your Turn to solve and show all steps:**

|  |  |  |  |
| --- | --- | --- | --- |
| **n** | **- 27** | **=** | **-39** |
|  | +27 | = | +27 |
| n |  | = | -12 |
| **Check:** |
| -12 | - 27 | = | -39 |

|  |  |  |
| --- | --- | --- |
| **-6p** | **=** | **93** |
| ÷ (-6) | = | ÷ (-6) |
| p | = | -15.5 |
| **Check:** |
| -6 | • (-15.5) | **=** | **93** |

|  |  |  |  |
| --- | --- | --- | --- |
| **m** | **+ 83** | **=** | **61** |
|  |  | **=** |  |
|  |  | **=** |  |
| **Check:** |
|  |  | = |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **h** | **+ (-5)** | **=** | **23** |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |

|  |  |  |
| --- | --- | --- |
| **8f** | **=** | **240** |
|  | = |  |
|  | = |  |
| **Check:** |
|  |  | = |  |

|  |  |  |
| --- | --- | --- |
| $$\frac{r}{1.2}$$ | **=** | **-0.5** |
|  | = |  |
|  | = |  |
| **Check:** |
|  |  | = |  |

**Solving Two-Step or Multi-Step Equations**

The point of solving an equation is to find the value of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. To do this, we must \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

the variable on one side of the equation. To keep the equation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, every action must be taken to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sides of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sign.

Your first step is to “undo” the operation that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the variable. Perform that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ operation to both sides. Continue this process for every value in the equation until the variable is isolated (solved).

Lastly, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ your solution into the original equation to check your answer.

**Example**: **Your Turn to solve and show all steps:**

|  |  |  |  |
| --- | --- | --- | --- |
| **7n** | **- 2** | **=** | **-44** |
|  | + 2 | = | + 2 |
| 7n |  | = | -42 |
| ÷ 7 |  | = | ÷ 7 |
| n |  | = | -6 |
| **Check:** |
| 7(-6) | - 2 | = | -44 |
| -42 | + (-2) | = | -44 |

|  |  |  |  |
| --- | --- | --- | --- |
| $$\frac{x}{12}$$ | **+ 4** | **=** | **1** |
|  | - 4 | = | - 4 |
| $$\frac{x}{12}$$ |  | = |  |
| x 12 |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **47** | **- 12r** | **=** | **76** |
| - 47 |  | = | - 47 |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **25y** | **+ 75** | **=** | **-25** |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

**Practice:**

|  |  |  |  |
| --- | --- | --- | --- |
| **11x** | **+ 15** | **=** | **48** |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **-3y** | **- 22** | **=** | **-7** |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **-64** | **+** $\frac{m}{10}$ | **=** | **-24** |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

|  |  |  |  |
| --- | --- | --- | --- |
| $$\frac{p}{-35}$$ | **+ 0.8** | **=** | **0.6** |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
|  |  | = |  |
| **Check:** |
|  |  | = |  |
|  |  | = |  |

6n + 14 = 62 -32 + (-2x) = -46 $\frac{g}{-1.5}$ – 3 = 5 $\frac{c}{30}$ + 4 = -1

-4(s + 5) = -24 $\frac{k-14}{-8}$ = 15 $\frac{22 +z }{11}$ = 6 9(t – 11) = 81

-3y – 18 = 6y + 9 3(-x – 2) = -4x + 8 10d + (-19d) = 4d +13