

Name: *Key*

Date:

Topic:

Class:

Main Ideas/Questions	Notes/Examples
<p>TWO-STEP EQUATIONS</p> <p>$px + q = r$</p>	Steps to Solve:
	① Locate the variable.
	② Undo the addition/subtraction to remove "q".
	③ Undo the multiplication/division to remove "p".
	④ Check your solution!
<p>EXAMPLES</p>	<p>Directions: Solve each equation. Check all solutions.</p> <p>1. $9a - 2 = -63$</p> $\begin{array}{r} +2 \quad +2 \\ \hline 9a = -63 \\ \frac{9a}{9} = \frac{-63}{9} \\ a = -7 \end{array}$
	<p>2. $-4x + 7 = 31$</p> $\begin{array}{r} -7 \quad -7 \\ \hline -4x = 24 \\ \frac{-4x}{-4} = \frac{24}{-4} \\ x = -6 \end{array}$
	<p>3. $\frac{k}{3} - 11 = -5$</p> $\begin{array}{r} +11 \quad +11 \\ \hline 3 \cdot \frac{k}{3} = 6 - 3 \\ k = 18 \end{array}$
	<p>4. $8 = 23 - 5w$</p> $\begin{array}{r} -23 \quad -23 \\ \hline -15 = -5w \\ \frac{-15}{-5} = \frac{-5w}{-5} \\ w = 3 \end{array}$
	<p>5. $8m - 11 = -11$</p> $\begin{array}{r} +11 \quad +11 \\ \hline 8m = 0 \\ \frac{8m}{8} = \frac{0}{8} \\ m = 0 \end{array}$
	<p>6. $-6 = 1 + \frac{n}{4}$</p> $\begin{array}{r} -1 \quad -1 \\ \hline -7 = \frac{n}{4} \cdot -4 \\ n = 28 \end{array}$
	<p>7. $19 - x = 30$</p> $\begin{array}{r} -19 \quad -19 \\ \hline -x = 11 \\ \frac{-x}{-1} = \frac{11}{-1} \\ x = -11 \end{array}$
	<p>8. $-17 + \frac{r}{2} = -25$</p> $\begin{array}{r} +17 \quad +17 \\ \hline 2 \cdot \frac{r}{2} = -8 \cdot 2 \\ r = -16 \end{array}$

$$9. 0.4x + 9 = 11$$

$$\begin{array}{r} -9 \quad -9 \\ \hline 0.4x = 2 \\ \hline 0.4 \quad 0.4 \\ \hline x = 5 \end{array}$$

$$10. -18 = -10 - 1.5m$$

$$\begin{array}{r} +10 \quad +10 \\ \hline -8 = -1.5m \\ \hline -1.5 \quad -1.5 \\ \hline m = 5.\bar{3} \end{array}$$

$$11. \frac{v}{-0.8} + 14 = 39$$

$$\begin{array}{r} v \\ -0.8 \\ \hline = 25 \\ \hline v = -20 \end{array}$$

$$12. \frac{2}{3}x - 7 = 5$$

$$\begin{array}{r} +7 \quad +7 \\ \hline \frac{2}{3}x = 12 \\ \hline \frac{3}{2} \cdot \frac{2}{3}x = 12 \cdot \frac{3}{2} \\ \hline x = 18 \end{array}$$

$$13. -1 = -\frac{5}{8}c + 9$$

$$\begin{array}{r} -9 \quad -9 \\ \hline -8 = -\frac{5}{8}c \\ \hline 8 \cdot -8 = 8 \cdot -\frac{5}{8}c \\ \hline -64 = -5c \\ \hline 13 \end{array}$$

$$c = 16$$

$$14. \frac{1}{3}m - 16 = -1$$

$$\begin{array}{r} +16 \quad +16 \\ \hline \frac{1}{3}m = 15 \\ \hline 3 \cdot \frac{1}{3}m = 15 \cdot 3 \\ \hline m = 45 \end{array}$$

TWO-STEP EQUATIONS

$$\frac{x+q}{p} = r$$

Steps to Solve:

- ① Locate the variable.
- ② Undo the multiplication/division to remove "p".
- ③ Undo the addition/subtraction to remove "q".
- ④ Check your solution!

EXAMPLES

$$15. \frac{x-1}{6} = 2$$

$$\begin{array}{r} \cancel{6} \cdot \frac{x-1}{\cancel{6}} = 2 \cdot 6 \\ \hline x-1 = 12 \\ +1 \quad +1 \\ \hline x = 13 \end{array}$$

$$16. 9 = \frac{m+17}{-2}$$

$$\begin{array}{r} -2 \cdot 9 = \frac{m+17}{-2} \cdot -2 \\ \hline -18 = \frac{m+17}{-1} \\ \hline -17 \quad -17 \\ \hline m = -35 \end{array}$$

$$17. -3 = \frac{k-5}{16}$$

$$\begin{array}{r} 16 \cdot -3 = \frac{k-5}{16} \cdot 16 \\ \hline -48 = k-5 \\ +5 \quad +5 \\ \hline -43 = k \end{array}$$

$$18. \frac{p+20}{7} = -4$$

$$\begin{array}{r} 7 \cdot \frac{p+20}{7} = -4 \cdot 7 \\ \hline p+20 = -28 \\ -20 \quad -20 \\ \hline p = -48 \end{array}$$