

Name: Key

Difficulty?: (easy) 1 2 3 4 5 6 7 8 9 10 (hard)

After completing the worksheet, check your solutions against the solutions given on my website

Algebra Worksheet 2

Determine whether the following values are correct for the unknowns in each question.

a) $a = 3$

$$\begin{array}{l} 2a + 3 = 7 \quad R \\ \text{L} \\ 2(3) + 3 \quad 7 \\ 6 + 3 \end{array}$$

9 X
incorrect

e) $e = -3$

$$\begin{array}{l} 2e + 5 = -2e - 7 \quad R \\ \text{L} \\ 2(-3) + 5 \quad -2(-3) - 7 \\ -6 + 5 \quad 6 - 7 \end{array}$$

-1 ✓ -1
correct

i) $i = \frac{3}{5}$

$$\begin{array}{l} 5i - 4 = -1 \quad R \\ \text{L} \\ 5\left(\frac{3}{5}\right) - 4 \quad -1 \\ 3 - 4 \quad -1 \end{array}$$

-1 ✓
correct

b) $b = -1$

$$\begin{array}{l} 6 - 2b = 7 \quad R \\ \text{L} \\ 6 - 2(-1) \quad 7 \\ 6 + 2 \end{array}$$

8 X
incorrect

f) $f = 4$

$$\begin{array}{l} f + 5 = 3f - 2 \quad R \\ \text{L} \\ (4) + 5 \quad 3(4) - 2 \\ 9 \quad 12 - 2 \end{array}$$

9 X 10
incorrect

j) $j = -\frac{2}{3}$

$$\begin{array}{l} 2j + 3 = 5j - 2 \quad R \\ \text{L} \\ 2\left(-\frac{2}{3}\right) + 3 \quad 5\left(-\frac{2}{3}\right) - 2 \end{array}$$

$$-\frac{4}{3} + 3 \quad -\frac{10}{3} - 2$$

$$-\frac{4}{3} + \frac{9}{3} \quad -\frac{10}{3} - \frac{6}{3}$$

$$\frac{5}{3} \quad -\frac{16}{3} \quad \text{incorrect}$$

c) $c = -2$

$$\begin{array}{l} 3c - 5 = -12 \quad R \\ \text{L} \\ 3(-2) - 5 \quad -12 \\ -6 - 5 \end{array}$$

-11 X
incorrect

g) $g = \frac{1}{2}$

$$\begin{array}{l} 2g + 3 = 5g - 1 \quad R \\ \text{L} \\ 2\left(\frac{1}{2}\right) + 3 \quad 5\left(\frac{1}{2}\right) - 1 \\ 1 + 3 \quad \frac{5}{2} - \frac{2}{2} \end{array}$$

4 X $\frac{3}{2}$
incorrect

k) $k = \frac{3}{2}$

$$\begin{array}{l} 4k + 1 = 2k + 4 \quad R \\ \text{L} \\ 4\left(\frac{3}{2}\right) + 1 \quad 2\left(\frac{3}{2}\right) + 4 \\ 6 + 1 \quad 3 + 4 \end{array}$$

7 ✓ 7
correct

d) $d = 2$

$$\begin{array}{l} 4 - 2d = 0 \quad R \\ \text{L} \\ 4 - 2(2) \quad 0 \\ 4 - 4 \end{array}$$

0 ✓
correct

h) $h = -\frac{1}{3}$

$$\begin{array}{l} 3h + 1 = 3 + 9h \quad R \\ \text{L} \\ 3\left(-\frac{1}{3}\right) + 1 \quad 3 + 9\left(-\frac{1}{3}\right) \\ (-1) + 1 \quad 3 + (-3) \end{array}$$

0 ✓ 0
correct

l) $l = \frac{9}{2}$

$$\begin{array}{l} l + 5 = 3l - 4 \quad R \\ \text{L} \\ \frac{9}{2} + 5 \quad 3\left(\frac{9}{2}\right) - 4 \\ \frac{9}{2} + \frac{10}{2} \quad \frac{27}{2} - \frac{8}{2} \end{array}$$

$\frac{19}{2}$ ✓ $\frac{19}{2}$
correct

Solve each equation for the unknown, then perform a check of your answer. Are both sides equal when you put your value into the equation???

$$1) \quad 3x + 7 = x - 1$$

$$\quad -x \quad -7 \quad -x \quad -7$$

$$2x = -8$$

$$\boxed{x = -4}$$

L	
$3(-4) + 7$	R
$-12 + 7$	$-4 - 1$
-5	-5
-5	✓

correct

$$2) \quad 5 - 2x = 3x + 1$$

$$\quad +2x \quad +2x$$

$$5 = 5x + 1$$

$$\quad -1 \quad -1$$

$$4 = 5x$$

$$\div 5 \quad \div 5$$

$$\boxed{\frac{4}{5} = x}$$

L	
$5 - 2(\frac{4}{5})$	R
$5 - \frac{8}{5}$	$3(\frac{4}{5}) + 1$
$\frac{25}{5} - \frac{8}{5}$	$\frac{12}{5} + 1$
$\frac{17}{5}$	$\frac{12}{5} + \frac{5}{5}$
$\frac{17}{5}$	$\frac{17}{5}$
$\frac{17}{5}$	✓

$$\frac{17}{5} \quad \checkmark \quad \frac{17}{5}$$

correct

$$3) \quad 4x - 2 = 3 - 2x$$

$$\quad +2x \quad +2 \quad +2 \quad +2x$$

$$6x = 5$$

$$\div 6 \quad \div 6$$

$$\boxed{x = \frac{5}{6}}$$

L	
$4(\frac{5}{6}) - 2$	R
$\frac{20}{6} - 2$	$3 - 2(\frac{5}{6})$
$\frac{20}{6} - \frac{12}{6}$	$3 - \frac{10}{6}$
$\frac{20}{6} - \frac{12}{6}$	$\frac{18}{6} - \frac{10}{6}$
$\frac{8}{6}$	$\frac{18}{6} - \frac{10}{6}$
$\frac{8}{6}$	$\frac{8}{6}$
$\frac{8}{6}$	✓

$$\frac{20}{6} - 2 \quad 3 - \frac{10}{6}$$

$$\frac{20}{6} - \frac{12}{6} \quad \frac{18}{6} - \frac{10}{6}$$

$$\frac{8}{6} \quad \checkmark \quad \frac{8}{6}$$

correct

$$4) \quad 3 + 4x = 2 - 3x$$

$$\quad +3x \quad +3x$$

$$3 + 7x = 2$$

$$\quad -3 \quad -3$$

$$7x = -1$$

$$\div 7 \quad \div 7$$

$$\boxed{x = -\frac{1}{7}}$$

L		R
$3 + 4(-\frac{1}{7})$		$2 - 3(-\frac{1}{7})$
$3 - \frac{4}{7}$		$2 + \frac{3}{7}$
$\frac{21}{7} - \frac{4}{7}$		$\frac{14}{7} + \frac{3}{7}$
$\frac{17}{7}$	✓	$\frac{17}{7}$

$$3 - \frac{4}{7} \quad 2 + \frac{3}{7}$$

$$\frac{21}{7} - \frac{4}{7} \quad \frac{14}{7} + \frac{3}{7}$$

$$\frac{17}{7} \quad \checkmark \quad \frac{17}{7}$$

correct.

$$5) \quad 3 - 3x = 4 - 5x$$

$$\quad +3x \quad +3x$$

$$3 = 4 - 2x$$

$$\quad -4 \quad -4$$

$$-1 = -2x$$

$$\div -2 \quad \div -2$$

$$\boxed{\frac{1}{2} = x}$$

L	
$3 - 3(\frac{1}{2})$	R
$3 - \frac{3}{2}$	$4 - 5(\frac{1}{2})$
$\frac{6}{2} - \frac{3}{2}$	$4 - \frac{5}{2}$
$\frac{3}{2}$	$\frac{8}{2} - \frac{5}{2}$
$\frac{3}{2}$	$\frac{3}{2}$
$\frac{3}{2}$	✓

$$3 - \frac{3}{2} \quad 4 - \frac{5}{2}$$

$$\frac{6}{2} - \frac{3}{2} \quad \frac{8}{2} - \frac{5}{2}$$

$$\frac{3}{2} \quad \checkmark \quad \frac{3}{2}$$

correct

$$6) \quad 2x + 6 = -5x + 6$$

$$\quad -6 \quad -6$$

$$2x = -5x$$

$$+5x \quad +5x$$

$$7x = 0$$

$$\div 7 \quad \div 7$$

$$\boxed{x = 0}$$

L	
$2(0) + 6$	R
$0 + 6$	$-5(0) + 6$
6	$0 + 6$
6	6
6	✓

$$2(0) + 6 \quad -5(0) + 6$$

$$0 + 6 \quad 0 + 6$$

$$6 \quad \checkmark \quad 6$$

correct