

Solving Algebraic Equations Containing Decimals

(Deal with Decimals & Clear of Decimals)

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1) $x - 4.3 = 2.5$

$+ 4.3 \quad + 4.3$

$x = 6.8$

4) $7.44 = 3.1a$

$\frac{7.44}{3.1} = \frac{3.1a}{3.1}$

$2.4 = a$

Handwritten long division: $3.1 \overline{) 7.44}$
 $3.1 \times 2 = 6.2$
 $7.44 - 6.2 = 1.24$
 $3.1 \times 4 = 12.4$
 $1.24 - 1.24 = 0$

2)

$9.08 - 3x = -6.10$

$- 9.08 \quad - 9.08$

$-3x = -15.18$

$\frac{-3x}{-3} = \frac{-15.18}{-3}$

$x = 5.06$

Handwritten long division: $3 \overline{) 15.18}$
 $3 \times 5 = 15$
 $15.18 - 15 = 0.18$
 $3 \times 0.06 = 0.18$
 $0.18 - 0.18 = 0$

5)

$5.2 - r = 1.4$

$- 5.2 \quad - 5.2$

$-r = -3.8$

$r = 3.8$

Handwritten long division: $5.2 - 1.4 = 3.8$

3)

$-13 + 3.5y + 9.2 = 1.6y$

$- 3.5y \quad - 3.5y$

$-3.8 = -1.9y$

$2 = y$

Handwritten long division: $3.5 \overline{) 9.2}$
 $3.5 \times 2 = 7.0$
 $9.2 - 7.0 = 2.2$
 $3.5 \times 0.6 = 2.1$
 $2.2 - 2.1 = 0.1$

Handwritten long division: $1.9 \overline{) 3.8}$
 $1.9 \times 2 = 3.8$
 $3.8 - 3.8 = 0$

6)

$-5x + 5.73 = 2.3x - 23.47$

$+ 5x \quad + 5.0x$

$5.73 = 7.3x - 23.47$

$29.20 = 7.3x$

$4 = x$

Handwritten long division: $7.3 \overline{) 29.2}$
 $7.3 \times 4 = 29.2$
 $29.2 - 29.2 = 0$

Handwritten long division: $7.3 \overline{) 29.2}$
 $7.3 \times 4 = 29.2$

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7)

$$\begin{array}{r} 5(k - 2.16) = 4k \\ 5k - 10.8 = 4k \\ -5k \qquad -5k \end{array}$$

$$\begin{array}{r} -10.8 = -k \\ \underline{-1} \qquad \underline{-1} \end{array}$$

$$10.8 = k$$

$$\begin{array}{r} 2.16 \\ \times 5 \\ \hline 10.80 \end{array}$$

9)

$$\begin{array}{r} 3y + 15.9 = 4(2y + 7.1) \\ 3y + 15.9 = 8y + 28.4 \\ -3y \qquad -3y \end{array}$$

$$\begin{array}{r} 15.9 = 5y + 28.4 \\ -28.4 \qquad -28.4 \end{array}$$

$$\begin{array}{r} -12.5 = 5y \\ \underline{5} \qquad \underline{5} \end{array}$$

$$\begin{array}{r} 7.1 \\ 28.4 \\ 15.9 \\ \hline -12.5 \end{array}$$

$$-2.5 = y$$

$$\begin{array}{r} 2.5 \\ 5 \overline{)12.5} \\ \underline{-10} \\ 25 \\ \underline{-25} \\ 0 \end{array}$$

8)

$$\begin{array}{r} 0.2x + 5 = 1.0x \\ -0.2x \qquad -0.2x \end{array}$$

$$\begin{array}{r} 5 = 0.8x \\ \underline{.8} \qquad \underline{.8} \end{array}$$

$$6.25 = x$$

$$\begin{array}{r} .8 \overline{)50.00} \\ \underline{48} \\ 20 \\ \underline{-16} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

10)

$$\begin{array}{r} 0.7y + 0.9 = 1.0y - 1.2 \\ -0.7y \qquad -0.7y \end{array}$$

$$\begin{array}{r} 0.9 = 0.3y - 1.2 \\ +1.2 \qquad +1.2 \end{array}$$

$$\begin{array}{r} 2.1 = 0.3y \\ \underline{.3} \qquad \underline{.3} \end{array}$$

$$7 = y$$

$$\begin{array}{r} 7 \\ .3 \overline{)2.1} \\ \underline{-2.1} \\ 0 \end{array}$$

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Clear of Decimals

11)

$$\begin{array}{r} 10 \quad 10 \quad 10 \quad 10 \\ -13 + 3.5y + 9.2 = 1.6y \\ -130 + 35y + 92 = 16y \\ \quad -35y \qquad \quad -35y \\ \hline \end{array}$$

$$\begin{array}{r} -38 = -19y \\ \hline -19 \quad -19 \end{array} \quad \begin{array}{r} 2 \\ 35 \\ 16 \\ -19 \end{array}$$

$$2 = y$$

$$\begin{array}{r} 19 \\ \times 2 \\ \hline 38 \end{array}$$

$$\begin{array}{r} 12 \\ +30 \\ 92 \\ \hline -38 \end{array}$$

Clear of Decimals

12)

$$\begin{array}{r} 100 \quad 100 \quad 100 \quad 100 \\ -5x + 5.73 = 2.3x - 23.47 \\ -500x + 573 = 230x - 2347 \\ +500x \qquad \qquad +500x \\ \hline \end{array}$$

$$\begin{array}{r} 573 = 730x - 2347 \\ +2347 \qquad \qquad +2347 \\ \hline \end{array}$$

$$\begin{array}{r} 2920 = 730x \\ \hline 730 \quad 730 \end{array}$$

$$4 = x$$

$$\begin{array}{r} 730 \\ \times 4 \\ \hline 2920 \end{array}$$