

SOLVING LINEAR EQUATIONS

NOTE: AT ANY STEP COMBINE LIKE TERMS AND COMBINE NUMBERS

1. GET RID OF PARENTHESES (VIA DIST. PROP.)
2. GET RID OF FRACTIONS (MULTIPLY EVERYTHING BY THE LCM OF ALL THE DENOMINATORS)
3. GET EVERYTHING WITH AN X ON ONE SIDE, NUMBERS ON OTHER SIDE
4. DIVIDE BOTH SIDES BY THE NUMBER IN FRONT OF THE X

#1

$$\begin{aligned}x + 4 &= -2 \\x &= -2 - 4 \\x &= -6\end{aligned}$$

$$\begin{aligned}x + 4 &= -2 \\-4 & \quad -4 \\x &= -6\end{aligned}$$

CHECK

$$\begin{aligned}(-6) + 4 &\stackrel{?}{=} -2 \\-2 &= -2\end{aligned}$$

#2

$$\frac{2}{5} = x - \frac{1}{3}$$
$$\overset{3}{\cancel{15}} \left(\frac{2}{\cancel{5}} \right) = 15(x) - \overset{5}{\cancel{15}} \left(\frac{1}{\cancel{3}} \right)$$

$$6 = 15x - 5$$

$$6 + 5 = 15x$$

$$11 = 15x$$

$$\frac{11}{15} = \frac{15}{15}x$$

$$x = \frac{11}{15}$$

LCM

① $5 = 5$
 $3 = 3$

② $LCM = 3 \cdot 5$
 $= 15$

#3

$$-5p = 15$$

$$\frac{-5p}{-5} = \frac{15}{-5}$$

$$p = -3$$

#4

$$\frac{5}{3}p = 10$$

$$\cancel{3} \left(\frac{5}{\cancel{3}} p \right) = 3(10)$$

$$5p = 30$$

$$\frac{5p}{5} = \frac{30}{5}$$

$$p = 6$$

#5

$$\frac{7}{4} = 2b$$

$$\cancel{4} \left(\frac{7}{\cancel{4}} \right) = 4(2b)$$

$$7 = 8b$$

$$\frac{7}{8} = \frac{8}{8}b$$

$$\frac{7}{8} = b$$

#6

$$\frac{5}{12}q = -\frac{1}{8}$$

$$\overset{2}{\cancel{24}} \left(\frac{5}{\cancel{12}} q \right) = \overset{3}{\cancel{24}} \left(-\frac{1}{\cancel{8}} \right)$$

$$10q = -3$$

$$\frac{10q}{10} = \frac{-3}{10}$$

$$q = -\frac{3}{10}$$

LCM

① $12 = 2 \cdot 2 \cdot 3$
 $8 = 2 \cdot 2 \cdot 2$

② $LCM = 2 \cdot 2 \cdot 2 \cdot 3$
 $= 24$