

# 4.1 Solving Simple Equations

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Pg 193 #3, 5, 6, 8, 9, 10, 12, 13

3 a)  $x + 7 = 12$   
 $x + 7 - 7 = 12 - 7$   
 $x = 5$

b)  $n - 8 = 11$   
 $n - 8 + 8 = 11 + 8$   
 $n = 19$

c)  $-5 + y = -2$   
 $-5 + 5 + y = -2 + 5$   
 $y = 3$

d)  $-9 + h = -6$   
 $-9 + 9 + h = -6 + 9$   
 $h = 3$

5. a)  $\frac{4z}{4} = \frac{-24}{4}$   
 $z = -6$

b)  $\frac{(-5)h}{-5} = -6(-5)$   
 $h = 30$

c)  $\frac{-6c}{-6} = \frac{-42}{-6}$   
 $c = 7$

d)  $\frac{-9a}{-9} = \frac{45}{-9}$   
 $a = -5$

6. a)  $7x - 4 = 10$   
 $7x - 4 + 4 = 10 + 4$   
 $7x = 14$   
 $x = 2$

check:

LS =  $7x - 4$       RS = 10  
 $= 7(2) - 4$   
 $= 14 - 4$   
 $= 10$

LS = RS ✓

b)  $7k + 2 = 16$   
 $7k + 2 - 2 = 16 - 2$   
 $7k = 14$   
 $k = 2$

LS =  $7k + 2$       RS = 16  
 $= 7(2) + 2$   
 $= 14 + 2$   
 $= 16$

LS = RS ✓

c)  $-p + 7 = 0$   
 $-p + 7 - 7 = 0 - 7$   
 $-p = -7$   
 $p = 7$

LS =  $-p + 7$       RS = 0  
 $= -(7) + 7$   
 $= -7 + 7$   
 $= 0$

LS = RS ✓

d)  $-12g - 33 = 0$   
 $-12g - 33 + 33 = 0 + 33$   
 $-12g = 33$   
 $\frac{-12g}{-12} = \frac{33}{-12}$   
 $g = \frac{33}{-12}$   
 $= \frac{11}{-4}$  (lowest terms)

LS =  $-12g - 33$       RS = 0  
 $= -12\left(\frac{-11}{4}\right) - 33$   
 $= \frac{132}{4} - 33$   
 $= 33 - 33$   
 $= 0$

LS = RS ✓

8. a)  $p + 9 = -2$   
 $p + 9 - 9 = -2 - 9$   
 $p = -11$

b)  $\frac{-5x}{-5} = \frac{35}{-5}$   
 $x = -7$

c)  $\frac{(4)u}{4} = -8(4)$   
 $u = -32$

d)  $6r + 3 = 33$   
 $6r + 3 - 3 = 33 - 3$   
 $6r = 30$   
 $r = 5$

e)  $10c - 6 = -16$   
 $10c - 6 + 6 = -16 + 6$   
 $10c = -10$   
 $c = -1$

f)  $-3v + 6 = -9$   
 $-3v + 6 - 6 = -9 - 6$   
 $-3v = -15$   
 $v = 5$

9. pies cost \$7 each. One customer buys \$84 worth of pies

let  $n$  be the number of pies bought:

$7n = 84$   
 $n = \frac{84}{7}$

$n = 12$       12 pies were bought.

10. let  $n$  be the number of jerseys they can buy:

10. let  $n$  be the number of jerseys they can buy:

$$\frac{50n}{50} = \frac{700}{50}$$

$$n = 14$$

The team can buy 14 jerseys for \$700

$$\begin{aligned} 12. a) \quad 2k - 7 &= -8 \\ 2k - 7 + 7 &= -8 + 7 \\ 2k &= -1 \\ k &= \frac{-1}{2} \end{aligned}$$

$$\begin{aligned} \text{LS} &= 2k - 7 & \text{RS} &= -8 \\ &= 2\left(\frac{-1}{2}\right) - 7 \\ &= -\frac{2}{2} - 7 \\ &= -\frac{2}{2} - \frac{14}{2} \\ &= \frac{-2 - 14}{2} \\ &= \frac{-16}{2} \\ &= -8 & \text{LS} &= \text{RS} \checkmark \end{aligned}$$

$$\begin{aligned} b) \quad 3x + 8 &= 2 \\ 3x + 8 - 8 &= 2 - 8 \\ 3x &= -6 \\ \frac{3x}{3} &= \frac{-6}{3} \\ x &= -2 \end{aligned}$$

$$\begin{aligned} \text{LS} &= 3x + 8 & \text{RS} &= 2 \\ &= 3(-2) + 8 \\ &= -6 + 8 \\ &= 2 & \text{LS} &= \text{RS} \checkmark \end{aligned}$$

$$\begin{aligned} c) \quad 4m - 6 &= 12 \\ 4m - 6 + 6 &= 12 + 6 \\ 4m &= 18 \\ \frac{4m}{4} &= \frac{18}{4} \\ m &= \frac{9}{2} \end{aligned}$$

$$\begin{aligned} \text{LS} &= 4m - 6 & \text{RS} &= 12 \\ &= 4\left(\frac{9}{2}\right) - 6 \\ &= \frac{36}{2} - \frac{12}{2} \\ &= \frac{24}{2} \\ &= 12 & \text{LS} &= \text{RS} \checkmark \end{aligned}$$

$$\begin{aligned} 13. a) \quad 8r - \frac{3}{2} &= -15 \\ 8r - \frac{3}{2} + \frac{3}{2} &= -15 + \frac{3}{2} \\ 8r &= \frac{-30}{2} + \frac{3}{2} \end{aligned}$$

$$\begin{aligned} \text{LS} &= 8r - \frac{3}{2} & \text{RS} &= -15 \\ &= 8\left(\frac{-27}{16}\right) - \frac{3}{2} \\ &= \frac{-216}{16} - \frac{3}{2} \\ &= \frac{-27}{2} - \frac{3}{2} \\ &= \frac{-30}{2} \\ &= -15 & \text{LS} &= \text{RS} \checkmark \end{aligned}$$

\* Do you understand this step??

$$\begin{aligned} \frac{8r}{8} &= \frac{-27}{2(8)} \\ r &= \frac{-27}{16} \end{aligned}$$

$$\begin{aligned} b) \quad -10h - 6 &= -\frac{2}{5} \\ -10h - 6 + 6 &= \frac{-2}{5} + 6 \\ -10h &= \frac{-2}{5} + \frac{30}{5} \\ -10h &= \frac{28}{5} \\ \frac{-10h}{-10} &= \frac{28}{5(-10)} \\ h &= \frac{28}{-50} \\ h &= \frac{14}{-25} \end{aligned}$$

$$\begin{aligned} \text{LS} &= -10h - 6 & \text{RS} &= -\frac{2}{5} \\ &= -10\left(\frac{14}{-25}\right) - 6 \\ &= \frac{140}{25} - 6 \\ &= \frac{28}{5} - 6 \\ &= \frac{28}{5} - \frac{30}{5} \\ &= \frac{-2}{5} & \text{LS} &= \text{RS} \checkmark \end{aligned}$$