

# Solving Equations Review

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Page 230 # 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

1a)  $8 + m = -2$   
 $8 - 8 + m = -2 - 8$   
 $m = -10$

b)  $k - 7 = -11$   
 $k - 7 + 7 = -11 + 7$   
 $k = -4$

c)  $\frac{3x}{3} = \frac{18}{3}$   
 $x = 6$

d)  $\frac{5h}{5} = -4(5)$   
 $h = -20$

2a)  $3n + 8 = 20$   
 $3n + 8 - 8 = 20 - 8$   
 $3n = 12$   
 $n = \frac{12}{3}$   
 $n = 4$

b)  $4 + 5y = -21$   
 $4 - 4 + 5y = -21 - 4$   
 $5y = -25$   
 $y = \frac{-25}{5}$   
 $y = -5$

c)  $9 - 2x = -1$   
 $9 - 9 - 2x = -1 - 9$   
 $-2x = -10$   
 $x = \frac{-10}{-2}$   
 $x = 5$

d)  $-3s - 6 = 9$   
 $-3s - 6 + 6 = 9 + 6$   
 $-3s = 15$   
 $s = \frac{15}{-3}$   
 $s = -5$

3a)  $3n + 8 = 20$   
 $3n + 8 - 8 = 20 - 8$   
 $3n = 12$   
 $n = \frac{12}{3}$   
 $n = 4$

b)  $9 - 4r = -27$   
 $9 - 9 - 4r = -27 - 9$   
 $-4r = -36$   
 $r = \frac{-36}{-4}$   
 $r = 9$

4. Let  $n$  be number of candies

$0.12n$  is the price so  $0.12n + 0.70 = 2.50$

$0.12n = 2.50 - 0.70$

$0.12n = 1.80$

$n = \frac{1.80}{0.12}$

$n = 15$

she can buy 15 candies

5a)  $3 + 2m + 6m = 19$   
 $3 + 8m = 19$   
 $8m = 19 - 3$   
 $8m = 16$   
 $m = \frac{16}{8}$   
 $m = 2$

b)  $7w - 4 + w + 12 = 0$   
 $7w + w - 4 + 12 = 0$   
 $8w + 8 = 0$   
 $8w = -8$   
 $w = \frac{-8}{8}$   
 $w = -1$

c)  $3x + 7 = 2x - 3$   
 $3x - 2x = -3 - 7$   
 $x = -10$

d)  $5w - 6 = -4w + 3$   
 $5w + 4w = 3 + 6$   
 $9w = 9$   
 $w = \frac{9}{9}$   
 $w = 1$

6a)  $5 + 4y = 2y + 9$   
 $4y - 2y = 9 - 5$   
 $2y = 4$   
 $y = \frac{4}{2}$   
 $y = 2$

b)  $7 + 3k - 2 = 4k$   
 $7 - 2 = 4k - 3k$   
 $5 = k$

c)  $2w - 9 + 5w + 2 = 0$   
 $7w - 7 = 0$   
 $7w = 7$   
 $w = 1$

d)  $-5 + 7n = 9n + 11$   
 $7n - 9n = 11 + 5$   
 $-2n = 16$   
 $n = \frac{16}{-2}$   
 $n = -8$

7a)  $4 - (3p - 2) = p - 10$   
 $4 - 3p + 2 = p - 10$

b)  $3 + (h - 2) = 5 + 3h$   
 $3 + h - 2 = 5 + 3h$

$$7a) \begin{aligned} 4 - (3p - 2) &= p - 10 \\ 4 - 3p + 2 &= p - 10 \\ 6 - 3p &= p - 10 \\ -3p - p &= -10 - 6 \\ -4p &= -16 \\ p &= -16 / -4 \\ p &= 4 \end{aligned}$$

$$b) \begin{aligned} 3 + (h - 2) &= 5 + 3h \\ 3 + h - 2 &= 5 + 3h \\ h + 1 &= 5 + 3h \\ h - 3h &= 5 - 1 \\ -2h &= 4 \\ h &= 4 / -2 \\ h &= -2 \end{aligned}$$

$$c) \begin{aligned} 2(n - 8) &= -4(2n - 1) \\ 2n - 16 &= -8n + 4 \\ 2n + 8n &= 4 + 16 \\ 10n &= 20 \\ n &= 20 / 10 \\ n &= 2 \end{aligned}$$

$$d) \begin{aligned} 3(2k - 5) - k &= 4 - (3k + 7) \\ 6k - 15 - k &= 4 - 3k - 7 \\ 5k - 15 &= -3 - 3k \\ 5k + 3k &= -3 + 15 \\ 8k &= 12 \\ k &= 12 / 8 \\ &= 3/2 \end{aligned}$$

8. Angles in a triangle add up to  $180^\circ$

$$\begin{aligned} \text{So } 3x + 8x + x &= 180 \\ 12x &= 180 \\ x &= \frac{180}{12} \\ x &= 15 \end{aligned}$$

so now we sub in  $x = 15$  to find each angle:

$$\begin{aligned} 3(x) &= 3(15) & 8(x) &= 8(15) & x &= 15^\circ \\ &= 45^\circ & &= 120^\circ & & \end{aligned}$$

we can check:  $45^\circ + 120^\circ + 15^\circ = 180^\circ$  ✓

$$9a) \begin{aligned} \frac{1}{3}(x - 1) &= 4 \\ 3 \left( \frac{1}{3} \right) (x - 1) &= 3(4) \\ x - 1 &= 12 \\ x &= 13 \end{aligned}$$

$$b) \begin{aligned} \frac{b - 4}{3} &= -5 \\ 3 \left( \frac{b - 4}{3} \right) &= 3(-5) \\ b - 4 &= -15 \\ b &= -15 + 4 \\ b &= -11 \end{aligned}$$

$$c) \begin{aligned} 3 &= \frac{3}{4}(p - 1) \\ 4(3) &= 4 \left( \frac{3}{4} \right) (p - 1) \\ 12 &= 3(p - 1) \\ 12 &= 3p - 3 \\ 12 + 3 &= 3p \\ 15 &= 3p \\ 15 / 3 &= p \\ 5 &= p \end{aligned}$$

$$d) \begin{aligned} -3 &= \frac{5x + 4}{7} \\ 7(-3) &= 7 \left( \frac{5x + 4}{7} \right) \\ -21 &= 5x + 4 \\ -21 - 4 &= 5x \\ -25 &= 5x \\ -25 / 5 &= x \\ -5 &= x \end{aligned}$$

$$10a) \begin{aligned} 7 &= \frac{6g + 8}{4} \\ 4(7) &= 4 \left( \frac{6g + 8}{4} \right) \\ 28 &= 6g + 8 \\ 28 - 8 &= 6g \\ 20 &= 6g \\ 20 / 6 &= g \\ 10 / 3 &= g \end{aligned}$$

$$b) \begin{aligned} \frac{1}{2}(u - 5) &= 2u + 5 \\ 2 \left( \frac{1}{2} \right) (u - 5) &= 2(2u) + 2(5) \\ u - 5 &= 4u + 10 \\ u - 4u &= 10 + 5 \\ -3u &= 15 \\ u &= 15 / -3 \\ u &= -5 \end{aligned}$$

$$11a) \begin{aligned} \frac{y - 8}{3} &= \frac{y + 4}{2} \\ 6 \left( \frac{y - 8}{3} \right) &= 6 \left( \frac{y + 4}{2} \right) \\ 2(y - 8) &= 3(y + 4) \\ 2y - 16 &= 3y + 12 \\ 2y - 3y &= 12 + 16 \\ -y &= 28 \\ y &= -28 \end{aligned}$$

$$b) \begin{aligned} \frac{2}{3}(w - 5) &= \frac{3}{4}(w + 2) \\ 12 \left( \frac{2}{3} \right) (w - 5) &= 12 \left( \frac{3}{4} \right) (w + 2) \\ 8(w - 5) &= 9(w + 2) \\ 8w - 40 &= 9w + 18 \\ 8w - 9w &= 18 + 40 \\ -w &= 58 \\ w &= -58 \end{aligned}$$

$$c) \frac{c+3}{4} = \frac{c-5}{6}$$

$$12 \frac{(c+3)}{4} = 12 \frac{(c-5)}{6}$$

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

$$3c+9 = 2c-10$$

$$3c-2c = -10-9$$

$$c = -19$$

$$d) \frac{2}{5}(x+3) = \frac{1}{2}(x-5)$$

$$10 \left( \frac{2}{5} \right) (x+3) = 10 \left( \frac{1}{2} \right) (x-5)$$

$$4(x+3) = 5(x-5)$$

$$4x+12 = 5x-15$$

$$4x-5x = -15-12$$

$$-x = -27$$

$$x = 27$$

$$12. a) P = a + b + c$$

$$P - b - c = a + b - b + c - c$$

$$P - b - c = a$$

$$b) C = \pi d$$

$$\frac{C}{\pi} = \frac{\pi d}{\pi}$$

$$\frac{C}{\pi} = d$$

$$c) a = \frac{F}{m}$$

$$am = \frac{Fm}{m}$$

$$am = F$$

$$d) d = mt + b$$

$$d - b = mt + b - b$$

$$\frac{d-b}{m} = \frac{mt}{m}$$

$$\frac{d-b}{m} = t$$

$$13. P = I^2 R$$

Find power (P) when current (I) is 0.5 A and resistance (R) is 600  $\Omega$

The question is pretty simple, they are trying to confuse you with units!

lets list what we have.

$$P = ?$$

$$I = 0.5 \text{ A}$$

$$R = 600 \Omega$$

$\uparrow$  A and  $\Omega$  are just units, not variables!  $\circ\circ$

now we plug into  $P = I^2 R$

$$P = (0.5)^2 (600)$$

$$P = 0.25 (600)$$

$$P = 150$$

The power is 150 W  $\leftarrow$  the unit for power, not a variable!

b) find resistance when power is 500 W and current is 2 A

$$P = 500 \text{ W}$$

$$I = 2 \text{ A}$$

$$R = ?$$

$$P = I^2 R$$

$$500 = 2^2 R$$

$$500 = 4R$$

$$500/4 = R$$

$$125 = R$$

The resistance is 125  $\Omega$   $\leftarrow$  the unit for resistance

c) find current when resistance is 4 and power is 100

$$P = 100 \text{ W}$$

$$R = 4 \Omega$$

$$I = ?$$

$$P = I^2 R$$

$$100 = I^2 (4)$$

$$100/4 = I^2$$

$$25 = I^2$$

$$\sqrt{25} = \sqrt{I^2}$$

$$5 = I$$

The current is 5 A  $\leftarrow$  the unit for current