

HW: 2.3/24-29, 56, 63

Warm up:

Write an equation to solve.

When one third of a number is decreased by 11, the result is 38. Find the number.

$$3\left(\frac{1}{3}x - 11\right) = 38$$

$$\begin{array}{r} x - 33 = 114 \\ + 33 + 33 \\ \hline x = 147 \\ \textcircled{147} \end{array}$$

$$\begin{array}{r} \frac{1}{3}x - 11 = 38 \\ + 11 + 11 \\ \hline 3\left(\frac{1}{3}x\right) = 49 \\ x = 147 \end{array}$$

Four more than twice a number is 16. What is the number?

$$\begin{array}{r} 2x + 4 = 16 \\ -4 \quad -4 \\ \hline 2x = 12 \\ \frac{2}{2} \quad \frac{12}{2} \\ \hline x = 6 \\ \textcircled{6} \end{array}$$

Thirteen is five less than three times a number.
What is the number?

$$\begin{array}{r} 3x - 5 = 13 \\ + 5 \quad + 5 \\ \hline 3x = 18 \\ \frac{3x}{3} = \frac{18}{3} \\ x = 6 \end{array}$$

Find three consecutive integers whose sum is 78.

$$\frac{x}{1^{\text{st}}} + \frac{(x+1)}{2^{\text{nd}}} + \frac{(x+2)}{3^{\text{rd}}} = \frac{78}{\text{total}}$$

$$x + x + 1 + x + 2 = 78$$

$$3x + 3 = 78$$

$$\frac{3x}{3} = \frac{75}{3} \quad x = 25$$

25, 26, 27

Find four consecutive even integers who sum is 244.

$$\underline{x} + \underline{x+2} + \underline{x+4} + \underline{x+6} = 244$$

$$4x + 12 = 244$$

$$\begin{array}{r} 4x + 12 = 244 \\ -12 \quad -12 \\ \hline 4x = 232 \\ \frac{4}{4} \quad \frac{4}{4} \\ \hline x = 58 \end{array}$$

58, 60, 62, 64

What about consecutive odd integers?

The sum of three consecutive odd integers is 51. Find the numbers.

$$\underline{x} + \underline{x+2} + \underline{x+4} = 51$$

$$3x + 6 = 51$$

$$\begin{array}{r} 3x + 6 = 51 \\ -6 \quad -6 \\ \hline 3x = 45 \end{array}$$

$$x = 15$$

15, 17, and 19

HW Solutions

$$\textcircled{4} \quad 4 + 3(-x + 6) = -11$$

$$\underline{4 - 3x + 18 = -11}$$

$$\begin{array}{r} -3x + 22 = -11 \\ -22 \quad -22 \\ \hline \end{array}$$

$$\begin{array}{r} -3x = -33 \\ \hline -3 \quad -3 \end{array}$$

$$\textcircled{x = 11}$$

$$\textcircled{6} \quad 3x - (x + 7) = 20$$

$$\underline{3x} - \underline{x} - 7 = 20$$

$$\underline{2x} - 7 = 20$$

$$\underline{2x} = 27$$

$$\underline{x = 13.5}$$

$$\textcircled{2} \quad -4x - 3(5x + 12) = -2$$
$$\underline{-4x} - \underline{15x} - 36 = -2$$

$$\begin{array}{r} -19x - 36 = -2 \\ +36 \quad +36 \\ \hline \end{array}$$

$$\begin{array}{r} -19x = 34 \\ \hline -19 \quad -19 \end{array}$$

$$x = -\frac{34}{19}$$

$$\textcircled{7} \quad -x - 6(x-1) = 1$$

$$\underline{-x} - \underline{6x} + 6 = 1$$

$$\begin{array}{r} -7x + 6 = 1 \\ \quad \quad \quad -6 \quad -6 \\ \hline \end{array}$$

$$\begin{array}{r} -7x = -5 \\ \hline \end{array}$$

$$\textcircled{x = \frac{5}{7}}$$

$$\begin{aligned} \textcircled{9} \quad & -3 + 5(2x - 3) - 6(3x + 4) = -3 \\ & \underline{-3} + \underline{10x} - \underline{15} - \underline{18x} - \underline{24} = -3 \\ & -8x - 42 = -3 \\ & \quad \quad \quad +42 \quad +42 \\ & \hline & -8x = 39 \\ & \quad \quad \quad \underline{-8} \quad \underline{-8} \\ & \hline & \textcircled{x = -\frac{39}{8}} \end{aligned}$$

$$\textcircled{10} \quad (x+2) - 5(2x-3) + 2(4x-8) = 13$$
$$\underline{x+2} - \underline{10x+15} + \underline{8x-16} = 13$$

$$\begin{array}{r} -x + 1 = 13 \\ \underline{-1 \quad -1} \\ -x = 12 \\ \underline{-1 \quad -1} \\ \textcircled{x = -12} \end{array}$$

$$\textcircled{1} \quad \underline{5x - 1} + \underline{7x} = 17$$

$$12x - 1 = 17$$

$$\quad +1 \quad +1$$

$$\hline 12x = 18$$

$$\frac{12}{12} \quad \frac{18}{12}$$

$$\hline \textcircled{x = \frac{3}{2}}$$

$$\textcircled{5} \quad -10 + 4(7x - 8) = -8$$

$$\underline{-10} + 28x - \underline{32} = -8$$

$$28x - 42 = -8$$

$$+42 \quad +42$$

$$\frac{28x = 34}{28 \quad 28}$$

$$\frac{x = \frac{17}{14}}$$

1) Find three consecutive odd integers whose sum is 105.

2) Find five consecutive integers whose sum is 195.

3) The perimeter of a rectangle is 332cm and the width is 76cm. Find the length.

4) Burt's Burger Barn sold 495 hamburgers today. The number sold with cheese was half the number sold without cheese. How many of each kind were sold?

1) Find three consecutive odd integers whose sum is 105.

$$x + x + 2 + x + 4 = 105$$

$$3x + 6 = 105$$

$$\begin{array}{r} 3x + 6 = 105 \\ -6 \quad -6 \\ \hline 3x = 99 \\ \frac{3}{3} \quad \frac{3}{3} \\ \hline x = 33 \end{array}$$

$$33, 35, 37$$

2) Find five consecutive integers whose sum is 195.

$$x + x+1 + x+2 + x+3 + x+4 = 195$$

$$5x + 10 = 195$$

$$-10 \quad -10$$

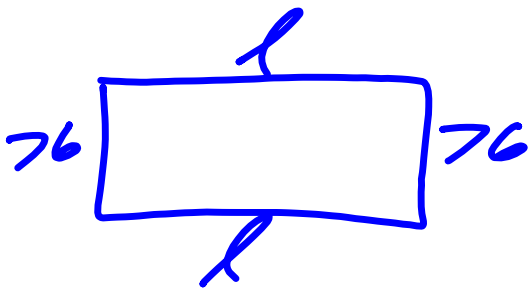
$$\hline 5x = 185$$

$$\frac{5x}{5} = \frac{185}{5}$$

$$\hline x = 37$$

37, 38, 39, 40, 41

3) The perimeter of a rectangle is 332cm and the width is 76cm. Find the length.



90cm

$$l + 76 + l + 76 = 332$$

$$2l + 152 = 332$$

$$\underline{-152 \quad -152}$$

$$\underline{2l = 180}$$

$$\underline{\quad \quad \quad 2}$$
$$l = 90$$

4) Burt's Burger Barn sold 495 hamburgers today. The number sold with cheese was half the number sold without cheese. How many of each kind were sold?

$$\therefore n + \frac{1}{2}n = 495$$

$$\frac{2}{3}\left(\frac{3}{2}n\right) = (495)\frac{2}{3}$$

$$2w + w = 495$$

$$n = 330$$

330 without
165 with