

Pre-Algebra

HW 6 SOLUTIONS

- Write the decimal:
 - twenty two hundredths $\Rightarrow 0.22$
 - the part of a decade that is represented by a year $\Rightarrow 0.1$
 - thirty and two hundred twenty-five thousands $\Rightarrow 30.225$
- Write in the order from least to greatest:
 - 4.16, 3.16, 4.26 $\Rightarrow 3.16, 4.16, 4.26$
 - 642.3, 641.3, 642.3 $\Rightarrow 641.3, 642.3$
 - 5.6642, 566.42, 5664.2, 56.642 $\Rightarrow 5.6642, 56.642, 566.42, 5664.2$
- Round...
 - 4.79 to the nearest tenth $\Rightarrow 4.8$
 - 0.316 to the nearest hundredth $\Rightarrow 0.32$
 - 558.81 to the nearest whole number $\Rightarrow 559$
- The qualifying time for entrants in a 6 mile race is 51.6 minutes. One runner's time is 55.5 minutes.
 - By how much does the runner need to improve their time in order to qualify? \Rightarrow 3.9 minutes
 - How long does the runner take to run a single mile? $\Rightarrow 9.25$ minutes
 - If another runner takes 9.41 minutes to run each mile, will they qualify? \Rightarrow In total the other runner will take 56.46 minutes, which is more than the 51.6 minutes, so they will NOT qualify.
- Ellen wanted to buy the following items: A DVD player for \$49.95, a DVD holder for \$19.95 and a personal stereo for \$21.95.
 - Estimate whether Ellen will have enough money to buy all three items if she has \$100 with her? \Rightarrow The total cost is \$91.85, so she will be able to buy everything.
 - Calculate the change from \$100 that she will receive. \Rightarrow She will receive \$8.15
- A golf shop pays its wholesaler \$40 for a certain club, and then sells it to a golfer for \$75. What is the percentage markup? \Rightarrow They add 87.5% of \$40 to the \$40 original price to reach the \$75 price

7. Your friend diets and goes from 125 pounds to 110 pounds. What was her percentage weight loss? => Her weight lost is 15 pounds. This represent 12% of the original 125 pounds weight.
8. Steven invested \$5000 for two years. For the first year, the rate of interest was 7% and the second year it was 8.5%. How much interest did he earn at the end of the two year period? => At the end of the first year, the interest earned was \$350, so he ended the first year \$5350. The interest earned in the second year was \$454.75, so he ended the second year with \$5804.75. The total money he earned in interest is \$804.75.

Solve:

1. $-2(x + 4) = x - 1$

$$\begin{aligned} -2x - 4 &= x - 1 \\ -2x - x &= -1 + 4 \\ -3x &= 3 \\ x &= -1 \end{aligned}$$

2. $\frac{1}{3}(6x - 15) = 10$

$$\begin{aligned} (6x - 15) &= \frac{10}{\frac{1}{3}} \\ (6x - 15) &= 10 * \frac{3}{1} \\ (6x - 15) &= 30 \\ 6x &= 30 + 15 \\ 6x &= 45 \\ x &= \frac{45}{6} \\ x &= \frac{15}{2} \\ x &= 7.5 \end{aligned}$$

3. $-(2x - 4) = 4x + 8$

$$\begin{aligned} -2x + 4 &= 4x + 8 \\ -2x - 4x + 4 &= +8 \\ -2x - 4x &= +8 - 4 \\ -6x &= +4 \\ x &= -\frac{4}{6} \\ x &\approx -0.667 \end{aligned}$$

$$4. -3x + 6 < 24$$

$$-3x < 24 - 6$$

$$-3x < 18$$

$$-x < \frac{18}{3}$$

$$-x < 6$$

$$x > -6$$

Translate into an equation and solve:

- Ann brought three grapefruits to the party. Bobby brought three more than twice the number Ann brought. How many grapefruits were there all together?

$$Ann = 3$$

$$Bobby = 3 + (2 * Ann)$$

So the total number is

$$N = Bobby + Ann = (3 + (2 * Ann)) + Ann = (3 + (2 * 3)) + 3 = (3 + 6) + 3 = 12$$

- Room temperature is 70 degrees Fahrenheit. Water must be kept at least 3 degrees less than half of room temperature in order to stay frozen. Solve for the freezing temperature of ice.

$$Room = 70$$

$$Water \leq \frac{Room}{2} - 3$$

$$Water \leq 35 - 3$$

$$Water \leq 32$$

The freezing point of water is 32 degrees Fahrenheit

- A garden has a perimeter of 64m. If the width of the garden is one half of the length, solve for the length and width of the garden.

$$Perimeter = 64$$

$$width = \frac{length}{2}$$

$$Perimeter = length + length + width + width$$

$$Perimeter = length + length + \frac{length}{2} + \frac{length}{2}$$

$$Perimeter = length * (1 + 1 + \frac{1}{2} + \frac{1}{2})$$

$$Perimeter = length * 3$$

$$length * 3 = Perimeter$$

$$length = \frac{Perimeter}{3} = \frac{64}{3}$$

$$width = \frac{length}{2} = \frac{\frac{64}{3}}{2} = \frac{64}{3 \cdot 2} = \frac{64}{6} = \frac{32}{3}$$

$$length = \frac{64}{3} \approx 21.333$$

$$width = \frac{32}{3} \approx 10.667$$