

Name

Key

Your score

7

Percent

%

include partial credit.

Chapter 7 Pre-Test

Possible points

7

Grade

Advanced Math

Show all steps on all problems.1. 0.8 is what percent of  $3 \times 10^{-9}$ ?

$$\frac{0.8}{3 \times 10^{-9}} = \frac{x}{100}$$

$$\frac{8 \times 10^{-1}}{3 \times 10^{-9}} = \frac{x}{100}$$

$$8 \times 10^{-1} \cdot 10^2 = 3 \cdot 10^{-9} x$$

$$\frac{8 \times 10^1}{3 \times 10^{-9}} = \frac{3 \times 10^{-9} x}{3 \times 10^{-9}}$$

$$\frac{8 \cdot 10^{10}}{3} = x$$

$$\boxed{2.67 \times 10^{10} = x}$$

2. A bug is crawling along at .088 meters per minute. Assuming it will live long enough, how many feet will it travel in 80 years?

$$\frac{0.088 \text{ m}}{1 \text{ min}} \cdot \frac{100 \text{ cm}}{1 \text{ m}}$$

$$\cdot \frac{1 \text{ in}}{2.54 \text{ cm}} \cdot \frac{1 \text{ ft}}{12 \text{ in}}$$

$$\cdot \frac{60 \text{ min}}{1 \text{ hr}} \cdot \frac{24 \text{ hrs}}{1 \text{ day}}$$

$$\cdot \frac{365 \text{ days}}{1 \text{ yr}} \cdot 80 =$$

$$= \frac{46,252,800 \text{ ft}}{30.48 \text{ yr}}$$

$$= \frac{1,517,480.315 \text{ ft}}{\text{sec}}$$

$$\approx \boxed{1,517,480 \text{ ft}} \\ \text{Sec.}$$

Align X to r that is mentioned in the last sentence.

3. A total of \$150.22 was invested, part at 1.8% and the rest at 4.3% per year. If the annual return from both investments was equal to the number of meters in 325 cm, how much was invested at 4.3%?

3.25

$$I = Prt + Prt$$

$$3.25 = P \cdot (0.018) \cdot 1 + [150.22 - P] \cdot 0.043 \cdot 1$$

$$3.25 = 0.018P + 6.45946 - 0.043P$$

$$3.25 = 0.018P + 6.45946 - 0.043P$$

$$6.45946$$

$$\frac{-3.20946}{-0.025} = \frac{-0.025P}{-0.025}$$

$$128.38 = P$$

$$\begin{array}{r} 150.22 \\ -128.38 \\ \hline 21.84 \end{array}$$

@4.3%

4. Connie borrowed \$99.22 from her friend and paid it back to her in 21 months. Her friend charged her 39% interest compounded weekly. How much did Connie pay her friend back at the end of the 21 months?

$$A = P \left(1 + \frac{r}{\text{per}}\right)^{t \cdot \text{per}}$$

$$A = 99.22 \left(1 + \frac{0.39}{52}\right)^{21 \cdot 12}$$

$$A = 99.22 \left(1 + \frac{0.39}{52}\right)^{252}$$

$$A = 99.22 \cdot (1.0075)^{252}$$

$$A = 99.22 \cdot 1.973785654$$

$$A = \$195.83$$

yes, they are still friends.

$$\begin{array}{r} 195.83 \\ -99.22 \\ \hline 96.61 \text{ extra} \end{array}$$

5. Big Daddy was eating at a restaurant and ordered the following meal; a double bacon cheeseburger for ~~\$7.99~~, a bowl of tapioca pudding for \$3.99, a 16 oz. porterhouse steak for ~~\$58.50~~, an extra-large ham and banana sandwich with double mustard for \$10.75, and a small diet coke for \$.87. Big had three coupons for 15% off. The waiter told him that he could use them individually but not as 45% off. The sales tax in Orlando, Florida is 6.0%. Big was very displeased with the service and wants to only tip .01% to his terrible waiter. What was the cost of Big's meal including the coupons, tax and tip?

100  
- 15 off  
85

$$7.99 + 3.99 + 58.50 + 10.75 + 0.87 = \$82.10$$

$$(\$82.10) \cdot (.85) \approx 50.42$$

* .06 tax	* TIP 0.0001
3.02	0.01

Big Daddy's total:  
 $50.42 + 3.02 + 0.01 =$   
 $= \$53.45$

6. Lola is going on a trip that costs \$3300. She makes a base salary of \$100 per week at her job selling bicycle seats. She needs to make the \$3300 in 7 weeks. How much does she need to sell in bicycle seats to have enough money to go on the trip at the end of the 7 weeks if she makes a 14% commission on all of her sales?

$$3300 - (7 \cdot 100) = 3300 - 700 = 2600$$

(commission)                      (commission)

$$X \text{ (TOTAL)} = \frac{2600}{14} = 100 \text{ (TOTAL \%)}$$

$$14X = 2600 \cdot 100$$

$$\frac{14X}{14} = \frac{260000}{14}$$

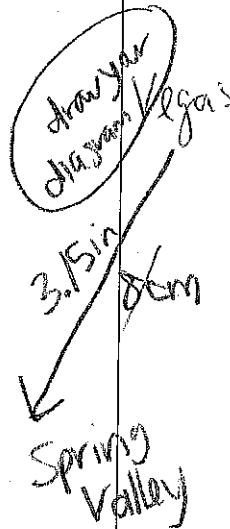
$$X = \$18,571.43$$

Lola needs to sell  
 \$18,571.43  
 worth of bike seats.

Good luck,  
 Lola!

↑  
 commission

7. I live in Las Vegas, Nevada. On a map, the distance between Las Vegas and Spring Valley is 8 cm. On the same map, Las Vegas is 7.5 inches away from Henderson. The scale on the map is  $\frac{1}{2}$  inch = 30.5 miles. My car gets 22 miles per gallon. What's the difference in the amount of gas I use when I drive to Spring Valley compared to Henderson? Express your answer to the nearest fluid ounce. (distances used are estimates).



Las Vegas  $\xrightarrow{7.5 \text{ in}}$  Henderson

1st proportion

$$\frac{\frac{1}{2} \text{ inch}}{30.5 \text{ miles}} = \frac{3.15 \text{ inch}}{X \text{ miles}}$$

$$\frac{1}{2} X = 3.15 \times 30.5$$

$$\frac{1}{2} X = 96.075$$

$$\frac{0.5 X}{0.5} = \frac{96.075}{0.5}$$

$$X = 192.15 \text{ miles}$$

192.15 miles

$$22 \text{ miles/gallon} =$$

$$8.73 \text{ gallons}$$

Comparison

$$20.80 - 8.73 = 11.35 \text{ gal} \times 128 = 1452.8 \text{ fluid oz}$$

CM  $\rightarrow$  in conversion

$$1 \text{ in} = 2.54 \text{ cm}$$

$$X \text{ in} = 8 \text{ cm}$$

$$\frac{1}{2.54} = \frac{X}{8}$$

$$\frac{2.54 X}{2.54} = \frac{8}{2.54}$$

$$X = 3.15 \text{ in}$$

2nd proportion

$$\frac{\frac{1}{2} \text{ in}}{30.5 \text{ miles}} = \frac{7.5 \text{ in}}{X \text{ miles}}$$

$$\frac{1}{2} X = 30.5 \times 7.5$$

$$2 \times \frac{1}{2} X = 228.75 \times 2$$

$$X = 457.5 \text{ miles}$$

$$\frac{457.5 \text{ miles}}{22 \text{ miles/gallon}} = 20.80 \text{ gallons}$$