



WARM UP GRADE 8

Mar. 16, 2016

THINKING...

(PLEASE BE PATIENT)

The population of fish in a local pond were 125 000 in May 2014.
The population decreased by 43% due to a nearby oil leak. What is the new population?

$$\begin{array}{l} \# \text{ of fish} \\ \text{decreased} \end{array} = 43\% \text{ of } 125\,000$$

↓ change to dec

$$\begin{aligned} &= 0.43 \times 125\,000 \\ &= 53\,750 \quad (\# \text{ of fish that died}) \end{aligned}$$

$$\begin{aligned} \text{New Pop} &= 125\,000 - 53\,750 \\ &= 71\,250 \end{aligned}$$

The new Population of fish is 71250.

Sheet · Extra Practiced

$$1. \begin{array}{l} 275\% \\ \times \\ 2.75 \end{array}$$

$$b) \begin{array}{l} 156\% \\ 1.56 \end{array}$$

$$\times c) \begin{array}{l} 320\% \\ 3.20 \end{array}$$

$$d) \begin{array}{l} 0.25\% \\ 0.0025 \end{array}$$

$$\times e) \begin{array}{l} 0.5\% \\ 0.005 \end{array}$$

$$f) \begin{array}{l} 0.58\% \\ 0.0058 \end{array}$$

$$2. \begin{array}{l} a) \frac{6}{5} = \frac{120}{100} \\ \times \\ 1.2 \rightarrow 120\% \end{array}$$

$$b) \begin{array}{l} \frac{45}{40} = 1.125 \\ 112.5\% \end{array}$$

$$\times c) \begin{array}{l} \frac{15}{3} = \frac{5}{1} = \frac{500}{100} \\ 5 \\ 500\% \end{array}$$

$$d) \begin{array}{l} \frac{9}{6} \frac{3}{2} = \frac{150}{100} \\ 15\% \end{array}$$

$$\times e) \begin{array}{l} \frac{60}{25} = \frac{240}{100} \\ 2.4 \rightarrow 240\% \end{array}$$

$$f) \begin{array}{l} \frac{9}{2} = \frac{450}{100} \\ 450\% \end{array}$$

$$3a) \begin{array}{l} 400\% \text{ of } 240 \\ \times \\ 4 \times 240 \\ 960 \end{array}$$

$$\begin{array}{l} * 40\% \text{ of } 240 \\ 0.4 \times 240 \\ 96 \end{array}$$

$$\begin{array}{l} 4\% \text{ of } 240 \\ 0.04 \times 240 \\ 9.6 \end{array}$$

$$\begin{array}{l} 0.4\% \text{ of } 240 \\ 0.004 \times 240 \\ 0.96 \end{array}$$

b) The numbers stay the same, but the position of the decimal moves.

$$c) \begin{array}{l} 4000\% \text{ of } 240 \\ 9600 \end{array}$$

$$\begin{array}{l} 0.04\% \text{ of } 240 \\ 0.096 \end{array}$$

4. a) 120% of Thursday's attendance
 120% of 160
 1.2×160
 192 people attended Friday night

b) Sat \rightarrow 75% of Friday's attendance
 75% of 192
 0.75×192
 144 people attended Sat.

c) 3 nights $\quad \underline{160} + 192 + \underline{144}$
 496 people attended in the 3 night.

5. a) Selling Price 124% of purchased price
 124% of 450 000
 $1.24 \times 450\,000$
 558 000 is selling price

b) 124% of 450 000
 100% of 450 000 + 25% of 450 000
 $450\,000 + 110\,000$
 560 000

c) Increase over 3 years
 $558\,000 - 450\,000$
 108 000

b. 1.2% spelled incorrectly
 Spelled correctly
 $100 - 1.2 = 98.8\%$ spelled correct
 98.8% of 500
 0.988×500
 494 words spelled correctly

b) $\approx 1\%$ spelled wrong
 1% of 500
 $(500 \div 100) = 5$ spelled wrong
 $500 - 5 = 495$ correct.

Sheet - Extra Practice 3

1a) 30% of $n = 12$

x

$$0.3n = 12$$

$$\frac{0.3n}{0.3} = \frac{12}{0.3}$$

$$n = 40$$

$$\begin{array}{l} 30\% \text{ of } n = 12 \div 3 \\ 10\% \text{ of } n = 12 \div 3 \\ \downarrow \times 10 \\ 100\% \text{ of } n = 4 \times 10 \\ = 40 \end{array}$$

$$100\% \text{ of } n = 4 \times 10 = 40$$

b) 2% of $n = 9$

$$0.02n = 9$$

$$\frac{0.02n}{0.02} = \frac{9}{0.02}$$

$$n = 450$$

$$1\% \text{ of } n = 9 \div 2 = 4.5$$

$$100\% \text{ of } n = 4.5 \times 100 = 450$$

x

c) 150% of $n = 60$

$$1.5n = 60$$

$$\frac{1.5n}{1.5} = \frac{60}{1.5}$$

$$n = 40$$

$$\begin{array}{l} 150\% \text{ of } n = 60 \div 3 \\ 50\% \text{ of } n = 20 \end{array}$$

$$100\% \text{ of } n = 20 \times 2 = 40$$

d) 55% of $n = 11$

$$0.55n = 11$$

$$\frac{0.55n}{0.55} = \frac{11}{0.55}$$

$$n = 20$$

$$5\% \text{ of } n = 11 \div 11 = 1$$

$$100\% \text{ of } n = 1 \times 20 = 20$$

2. a) 8% of $\underline{\quad}$ is 72

$$0.08n = 72$$

$$\frac{0.08n}{0.08} = \frac{72}{0.08}$$

$$n = 900$$

a) 8% is 72
 $\div 8$ $\div 8$

1% is 9
 $\times 100$ $\times 100$

100% is 900

b) 0.6% of $\underline{\quad}$ = 18

$$0.006n = 18$$

$$\frac{0.006n}{0.006} = \frac{18}{0.006}$$

$$n = 3000$$

c) 120% of $\underline{\quad}$ is 24

$$1.2n = 24$$

$$\frac{1.2n}{1.2} = \frac{24}{1.2}$$

$$n = 20$$

$10\% = 2$
 $100\% = 20$

d) 32% of $\underline{\quad}$ is 64

$$0.32 \times n = 64$$

$$\frac{0.32n}{0.32} = \frac{64}{0.32}$$

$$n = 200$$

$1\% = 2$
 $100\% = 200$

$$\begin{aligned} 3a) \text{ Amt Inc} &= 99.9 - 93.9 \\ &= 6 \end{aligned}$$

$$\begin{aligned} \% \text{ Inc} &= \frac{\text{Amt Inc}}{\text{Orig Amt}} \times 100\% \\ &= \frac{6}{93.9} \times 100\% \\ &= 0.064 \times 100\% \\ &= 6.4\% \end{aligned}$$

$$\begin{aligned} b) \text{ Amt Inc} &= 36000 - 32000 \\ &= 4000 \end{aligned}$$

$$\begin{aligned} \% \text{ Inc} &= \frac{\text{Amt Inc}}{\text{Orig Amt}} \times 100\% \\ &= \frac{4000}{32000} \times 100\% \\ &= 0.125 \times 100\% \\ &= 12.5\% \end{aligned}$$

$$\begin{aligned} c) \text{ Amt Inc} &= 2.49 - 1.99 \\ &= 0.50 \end{aligned}$$

$$\begin{aligned} \% \text{ Inc} &= \frac{\text{Amt Inc}}{\text{Orig Amt}} \times 100\% \\ &= \frac{0.50}{1.99} \times 100\% \\ &= 0.251 \times 100\% \\ &= 25.1\% \end{aligned}$$

$$4. \text{ Amt Dec} = 6800 - 5200 \\ = 1600$$

$$\% \text{ Dec} = \frac{\text{Amt Dec}}{\text{Orig Amt}} \times 100\% \\ = \frac{1600}{6800} \times 100\% \\ = 0.235 \times 100\% \\ 23.5\%$$

$$b) \text{ Amt Dec} = 840 - 672 \\ = 168$$

$$\% \text{ Dec} = \frac{\text{Amt Dec}}{\text{Orig Amt}} \times 100\% \\ = \frac{168}{840} \times 100\% \\ = 0.2 \times 100\% \\ 20\%$$

$$c) \text{ Amt Dec} = 1500 - 1200 \\ = 300$$

$$\% \text{ Dec} = \frac{\text{Amt Dec}}{\text{Orig Amt}} \times 100\% \\ = \frac{300}{1500} \times 100\% \\ = 0.2 \times 100\% \\ 20\%$$

5. 4% of all labels are defective

372 are defective.

4% of n is 372

$$0.04n = 372$$

$$\frac{0.04n}{0.04} = \frac{372}{0.04}$$

$$n = 9300 \text{ in total}$$

Not Defective

$$9300 - 372 = 8928$$

6. 75% of kicks were successful

75% of n is 51

$$0.75n = 51$$

$$\frac{0.75n}{0.75} = \frac{51}{0.75}$$

$$n = 68 \text{ kicks in total}$$

7. 15% of bill is tip

15% of n = 10.25

$$0.15n = 10.25$$

$$\frac{0.15n}{0.15} = \frac{10.25}{0.15}$$

$$n = 68.33 \text{ is the total bill.}$$

8. 2005 \rightarrow 250 cards

2006 \rightarrow increase of 12%

Inc \rightarrow 12% of 250

$$0.12 \times 250$$

30 increase

2006 \rightarrow 250 + 30
280

2007 \rightarrow increase of 15%

Inc \rightarrow 15% of 280

$$0.15 \times 280$$

42

2007 \rightarrow 280 + 42
322 cards at the end
of 2007

b) This NOT the same as taking 27% of 250, since the second increase involved more cards

http://www.taxtips.ca/provincial_sales_tax.htm



Sales Tax and Total Cost

Sales tax is money that you pay to the government on almost everything that you buy. In NB, we pay harmonized sales tax(HST) which is 13 %

Provincial Sales tax rate

BC	7% PST + GST
AB	0% PST + GST
SK	5% PST + GST
MN	7% PST + GST
ON	8% PST + GST
PQ	7.5% ** + GST*
NL	13% HST
NB	13% HST
NS	15% HST
PE	13% HST as of April 2013

We pay sales tax on the price of the item, so to calculate the amount of sales tax, we take 13% of the price. GST is 5%.

Example; A sweater sells for \$45.

- (a) find the amount of tax you have to pay.
- (b) find the total cost of the sweater.

$$\begin{aligned} \text{(a) Sales Tax} &= 13\% \text{ of the price} \\ &= 0.13 \times 45 \\ &= 5.85 \end{aligned}$$

$$\begin{aligned} \text{(b) Total cost} &= \text{Price of Item} + \text{Tax} \\ &= 45 + 5.85 \\ &= \$50.85 \end{aligned}$$

2. Find the amount of tax and total cost of a book that cost \$15.

$$\begin{aligned} \text{(a) Tax} &= 13\% \text{ of Price} \\ &= 13\% \times 15 \\ &= 0.13 \times 15 \\ &= \$1.95 \end{aligned}$$

$$\begin{aligned} \text{(b) Total cost} &= \text{Price} + \text{tax} \\ &= 15 + 1.95 \\ &= \$16.95 \end{aligned}$$

$$10\% \text{ of } 15 = 1.50$$

$$1\% \text{ of } 15 = 0.15$$

$\times 3$ $\times 3$

$$3\% \text{ of } 15 = 0.45$$

$$13\% \text{ of } 15 = 1.50 + 0.45$$

$$= 1.95$$

3. Find the total cost of a stereo that sells for \$229.99.

$$\begin{aligned} \text{Tax} &= 13\% \text{ of price} \\ &= 0.13 \times 229.99 \\ &= 29.8987 \text{ or } 29.90 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= \text{Price} + \text{Tax} \\ &= 229.99 + 29.90 \\ &= \$259.89 \end{aligned}$$

Class Homework

Homework pg. 260 #4-9

(Use 13% HST for all questions)

4 ab ← Just tax
5 ab ←
6 a b → total cost
7 a b →
9 →
→ increase first
→ then tax on total of hours
→