



Warm Up Grade 8

Mar. 15, 2016 Finding the Percent Increase or Percent Decrease

$$\frac{\text{Difference}}{\text{Original}} \times 100$$

* remember the original is always the first one**



1. The population of classes at UNB was 25 000 in 2011 has decreased over the past two years. In the first year the population decreased by 7%. In the second year the population decreased by 4% of the previous year's populations. What was the population in 2013?

$$\begin{aligned} \# \text{ decreased in } 2012 &= 7\% \times 25\,000 \\ &= 0.07 \times 25\,000 \\ &= 1\,750 \end{aligned}$$

$$\begin{aligned} \text{New Pop } 2012 &= 25\,000 - 1\,750 \\ &= 23\,250 \end{aligned}$$

$$\begin{aligned} \# \text{ decreased } 2013 &= 4\% \times 23\,250 \\ &= 0.04 \times 23\,250 \\ &= 930 \end{aligned}$$

$$\begin{aligned} \text{New Pop } 2013 &= 23\,250 - 930 \\ &= 22\,320 \end{aligned}$$

b) Can you find the % decrease in population for the 2 years

$$\begin{aligned} \% \text{ dec} &= \frac{\overset{\text{Big}}{\text{Orig}} - \overset{\text{Small}}{\text{New}}}{\text{Original}} \times 100 \% \\ &= \frac{25\,000 - 22\,320}{25\,000} \times 100 \% \end{aligned}$$

$$\frac{2680}{25000} \times 100 \%$$

$$0.1072 \times 100 \%$$

10.72 % decrease in pop

2. If the regular cost of a shirt is \$25.60 and it is on sale for \$16.64 then what percent did you save? (HINT percent DECREASE)

$$\begin{aligned}\% \text{ dec} &= \frac{\text{Diff}}{\text{orig}} \times 100 \% \\ &= \frac{25.60 - 16.64}{25.60} \times 100 \% \\ &= \frac{8.96}{25.60} \times 100 \% \\ &= 0.35 \times 100 \% \\ &= 35 \%\end{aligned}$$

13. a) 24% of 693 000 (Increase)

$$0.24 \times 693\,000 \\ 166\,320$$

Pop. in	693 000 + 166 320
2000	859 320

b) 11% Increase in 2005

$$11\% \text{ of } 859\,320 \\ 0.11 \times 859\,320 \\ 94\,525.2$$

Pop in 2005 \rightarrow

$$859\,320 + 94\,525 \\ 953\,845$$

$$\begin{aligned} \text{c) Amt of Inc} &= 953\,845 - 693\,000 \\ &= 260\,845 \end{aligned}$$

$$\begin{aligned} \% \text{ Inc} &= \frac{\text{Amt of Inc}}{\text{Orig Amt}} \times 100\% \\ &= \frac{260\,845}{693\,000} \times 100\% \\ &= 0.376 \times 100\% \\ &= 37.6\% \end{aligned}$$

d)

14. ~~★~~ 2005 Dec 6% of 15 194
 $0.06 \times 15\ 194$
 911.64

2005 \rightarrow 15 194 - 912
 14 282

2006 Dec \rightarrow 4% of 14 282
 $0.04 \times 14\ 282$
 571.28

2006 \rightarrow 14 282 - 571
 13 711

15. a) $150 \text{ cm} = 90\%$ of n

90% of $n = 150 \text{ cm}$

$$\frac{\cancel{0.9} \times n}{\cancel{0.9}} = \frac{150}{\cancel{0.9}}$$

$$n = 166.7 \text{ cm}$$

b) 98% of $n = 176$

$$\frac{\cancel{0.98} \times n}{\cancel{0.98}} = \frac{176}{\cancel{0.98}}$$

$$n = 179.6$$

ex 11

90% of "final height" = 150

$$\frac{0.9}{0.9} \times n = \frac{150}{0.9}$$

$$n = 167 \text{ cm}$$

98% of final height = 176

$$0.98 \times n = 176$$

★

16. 175

$$90\% \text{ of } n = 175$$

$$\frac{0.90 \times n}{0.9} = \frac{175}{0.9}$$

★

$$n = 194\text{cm}$$

17.

no, this is not a correct statement.

Original price = \$20

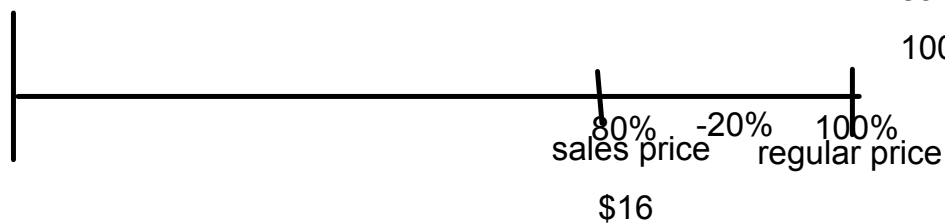
120% = \$24 x

80% is 16

10% is 2

so

100% is 20



for his calculations

Really is 16.67%

120% of sales price

$$120\% \times 16 =$$

$$1.2 \times 16 = 19.20$$

$$\frac{19.20 - 16}{19.20} = 3.2 \times 100 = 16.6\%$$

19.20 original

Extra Practice 1

- 1a) $24.5\% = 0.245 = \frac{245}{1000} = \frac{49}{200}$ 1b) $2\frac{4}{5}\% = 2.8\% = 0.028 = \frac{28}{1000} = \frac{7}{250}$
- 1c) $73.25\% = 0.7325 = \frac{7325}{10000} = \frac{293}{400}$ 1d) $99\frac{3}{4}\% = 99.75\% = 0.9975 = \frac{9975}{10000} = \frac{39}{400}$
- 3a) $\frac{5}{200} = \frac{25}{1000} = 0.025 = 2.5\%$ 3b) $\frac{3}{150} = \frac{1}{50} = 0.02 = 2\%$
- 3c) $\frac{12}{500} = \frac{3}{125} = 0.024 = 2.4\%$ 3d) $\frac{9}{300} = \frac{3}{100} = 0.03 = 3\%$
- 3e) $\frac{16}{400} = \frac{1}{25} = 0.04 = 4\%$ 3f) $\frac{12}{250} = \frac{6}{125} = 0.048 = 4.8\%$
- 3g) $\frac{15}{600} = \frac{1}{40} = 0.025 = 2.5\%$ 3h) $\frac{28}{800} = \frac{7}{200} = 0.035 = 3.5\%$
- 4a) $0.7\% = 0.007 = \frac{7}{1000}$ 4b) $0.44\% = 0.0044 = \frac{44}{10000} = \frac{11}{2500}$
- 4c) $0.15\% = 0.0015 = \frac{15}{10000} = \frac{3}{2000}$ 4d) $0.9\% = 0.009 = \frac{9}{1000}$
- 4e) $0.92\% = 0.0092 = \frac{92}{10000} = \frac{23}{2500}$ 4f) $0.27\% = 0.0027 = \frac{27}{10000}$
- 4g) $0.55\% = 0.0055 = \frac{55}{10000} = \frac{11}{2000}$ 4h) $0.36\% = 0.0036 = \frac{36}{10000} = \frac{9}{2500}$
- 5a) $0.221 = \frac{221}{1000} = 22.1\%$ 5b) $0.003 = \frac{3}{1000} = 0.3\%$
- 5c) $0.2225 = \frac{2225}{10000} = \frac{89}{400} = 22.25\%$ 5d) $0.0095 = \frac{95}{10000} = \frac{19}{2000} = 0.95\%$
- 5e) $0.0016 = \frac{16}{10000} = \frac{1}{625} = 0.16\%$ 5f) $0.375 = \frac{375}{1000} = \frac{3}{8} = 37.5\%$
- 5g) $0.1875 = \frac{1875}{10000} = \frac{3}{16} = 18.75\%$ 5h) $0.0031 = \frac{31}{10000} = 0.31\%$

6) Elaine $\frac{19}{24} = 0.7916666 = 79.1\%$

Addison 81.25% Addison did better since she has a larger percentage

7) Team A $\frac{10}{12} = 0.8333 = 83.3\%$

Team B $\frac{13}{15} = 0.86666 = 86.6\%$

Team A had the lesser percent of its team present at the tournament.

Class / Homework

Extra Practice 2: Calculating Percents



1, 2, 3, 4, 5, 6a
ecg, ecg, ecg, ecg, ecg, ecg

Extra Practice 3: Solving Percent Problems



1 a, c
2 a b c
3 b c
4 b c
5, 8

Attachments

Extra Practice 1 Relating Fraction, decimal and percent.pdf

Extra Practice 2 (Find the percent of a number).pdf

Extra Practice 3(% of a number is ...find the missing number, % increase or decrease).pdf