



Warm Up Grade 8

Feb. 15, 2018 Finding the Percent Increase or Percent Decrease

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

* remember the original is always the first one**

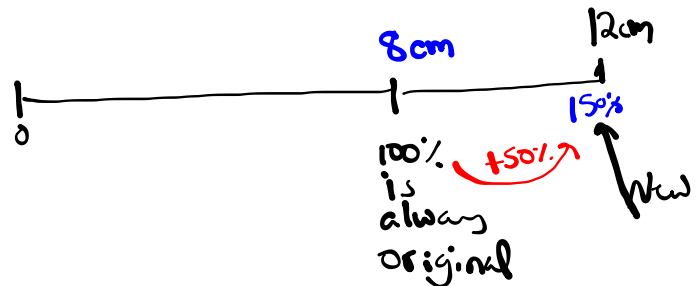
SHORT QUIZ TOMORROW

1. The width of the rectangle increased from 8 cm to 12 cm.
Write the increase as a percent.

$$\text{Diff} = 12\text{cm} - 8\text{cm} = 4\text{cm}$$

$$\begin{aligned} \% \text{ inc} &= \frac{\text{Diff}}{\text{Orig}} \times 100 \\ &= \frac{4\text{cm}}{8\text{cm}} \times 100 \\ &= 0.5 \times 100 \end{aligned}$$

$$\% \text{ increase} = 50\%$$



2. The volume of water in the tank decreased from 40 L to 32 L.
Write the decrease as a percent.

$$40\text{L} \rightarrow 32\text{L}$$

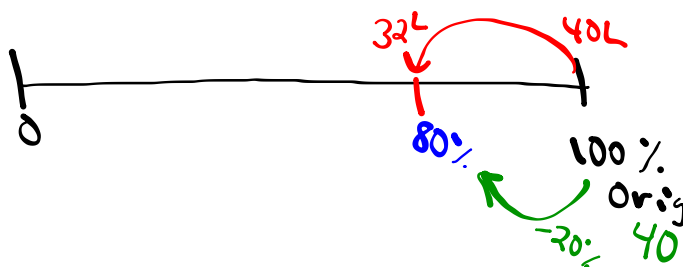
orig

$$\begin{aligned} \text{Diff} &= 40\text{L} - 32\text{L} \\ &= 8\text{L} \end{aligned}$$

$$\begin{aligned} \% \text{ Decrease} &= \frac{\text{Diff}}{\text{Orig}} \times 100 \\ &= \frac{8\text{L}}{40\text{L}} \times 100 \\ &= 0.2 \times 100 \end{aligned}$$

divide out on cal

$$\% \text{ Decrease} = 20\%$$



Finding the Percent Increase or Percent Decrease

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

***** Important

Percent Increase = $\frac{\text{Amount of Increase}}{\text{Original Amount}} \times 100\%$ (Amount of Increase = New Price - Original Price)

Percent Decrease = $\frac{\text{Amount of Decrease}}{\text{Original Amount}} \times 100\%$ (Amount of Decrease = Original Price - NewPrice)

$$5. \text{ Amt of Inc} = 10 - 5$$

$$= 5$$

$$\% \text{ Inc} = \frac{\text{Amt of Inc}}{\text{Orig Amt}} \times 100\%$$

$$= \frac{5}{5} \times 100\%$$

$$= 100\%$$

$$b) \text{ Amt of Inc} = 12 - 8$$

$$= 4$$

$$\% \text{ Inc} = \frac{\text{Amt of Inc}}{\text{orig Amt}} \times 100\%$$

$$= \frac{4}{8} \times 100\%$$

$$= 0,5 \times 100\%$$

$$= 50\%$$

$$6. \text{ Amt of Dec} = 15 - 12$$

$$= 3$$

$$\% \text{ Dec} = \frac{\text{Amt of Dec}}{\text{orig Amt}} \times 100\%$$

$$= \frac{3}{15} \times 100\%$$

$$= 0.2 \times 100\%$$

$$= 20\%$$

$$b) \text{ Amt of Dec} = 200 - 150$$

$$= 50$$

$$\text{Percent Dec} = \frac{\text{Amt of Dec}}{\text{orig Amt}} \times 100\%$$

$$= \frac{50}{200} \times 100\%$$

$$= 0.25 \times 100\%$$

$$= 25\%$$

$$\begin{aligned} 8. \quad a) \text{ Amt of Inc} &= 344\,000 - 320\,000 \\ &= 24\,000 \end{aligned}$$

$$\begin{aligned} \% \text{ Inc} &= \frac{\text{Amt of Inc}}{\text{Orig Amt}} \times 100\% \\ &= \frac{24\,000}{320\,000} \times 100\% \\ &= 0.075 \times 100\% \\ &= 7.5\% \end{aligned}$$

$$\begin{aligned} b) \text{ Amt of Inc} &= 99\,284 - 41\,715 \\ &= 57\,569 \end{aligned}$$

$$\begin{aligned} \% \text{ Inc} &= \frac{\text{Amt of Inc}}{\text{Orig Amt}} \times 100\% \\ &= \frac{57\,569}{41\,715} \times 100\% \\ &= 1.38 \times 100\% \\ &= 138\% \end{aligned}$$

$$9a) \text{ Amt of Dec} = 109.9 - 104.9 \\ = 5$$

$$\begin{aligned} \% \text{ Dec} &= \frac{\text{Amt Dec}}{\text{Orig Amt}} \times 100\% \\ &= \frac{5}{109.9} \times 100\% \\ &= 0.0455 \times 100\% \\ &= 4.55\% \end{aligned}$$

$$b) \text{ Amt of Dec} = 17 - 10 \\ = 7$$

$$\begin{aligned} \% \text{ Dec} &= \frac{\text{Amt of Dec}}{\text{Orig Amt}} = \frac{7}{17} \times 100\% \\ &= 0.412 \times 100\% \\ &= 41.2\% \end{aligned}$$

10. 2001 $\rightarrow$ 12% less miners

12% of miners in 1986

12% of 193 000

$$0.12 \times 193\,000$$

23 160 $\rightarrow$ fewer miners

so in 2001

$$193\,000 - 23\,160$$

169 840 miners in 2001

11. Amt of Dec $\frac{55 - 12}{43}$

$$\begin{aligned} \% \text{ Dec} &= \frac{\text{Amt of Dec}}{\text{Orig Amt}} \times 100\% \\ &= \frac{43}{55} \times 100\% \\ &= 0.782 \times 100\% \\ &= 78.2\% \text{ decrease} \end{aligned}$$

12. Jemma

Week 1 15% of 1.5
Increase 0.15×1.5
 0.225

Mass after week 1 $\rightarrow 1.5 + 0.225$
 1.725

Week 2 15% of 1.725
Increase 0.15×1.725
 0.25875

Jemma's mass - week 2 $1.725 + 0.25875$
 1.98375 kg

George
30% increase
in 2 weeks 30% of 1.5
 $= 0.3 \times 1.5$
 $= 0.45$

Total mass $1.5 + 0.45$
 1.95 kg

(b)

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 →

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

$$953\,845$$

c) Amt of Inc = $953\,845 - 693\,000$

$$= 260\,845$$

$$\% \text{ Inc} = \frac{\text{Amt of Inc}}{\text{Orig Amt}} \times 100\%$$

$$= \frac{260\,845}{693\,000} \times 100\%$$

$$= 0.376 \times 100\%$$

$$= 37.6\%$$

d)

- 15. a) $150\text{cm} = 90\%$ of cd, H +

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

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

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

- b) 98% of $n = 176$

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

$$n = 179.6$$

Class / Homework

pg. 252 - 254 #16 boy: 90% of adult height is 148 cm at age 13, find adult height?

$$90\% \text{ of } H = 148$$

↓
Girl: 95% of adult height is 168 cm at age 13, find adult height?

$$\frac{0.90 H = 148}{0.90} \quad \frac{0.95 H = 168}{0.95}$$

$H =$

SHORT QUIZ TOMORROW

Extra Practice 1: # 1 to #7

Use your notes

1 a b c
3 a b e
4 a g
5 a c e
6
7

14) Crime $\rightarrow$ 15194 in year 2004

$\rightarrow$ Crime decreases by 6% year 1

6% of Crime

6% of 15194

$\downarrow$
 0.06×15194

≈ 912 less crime

$$\text{New Crime} = 15194 - 912 \\ = 14282$$

$\leftarrow$ original is 100%.
if I decrease by 6%
I would be 94% of orig

$$94\% \text{ of } 15194 \\ 0.94 \times 15194 \\ = 14282$$

$\rightarrow$ Crime decrease by 4%

4% of New Crime

4% of 14282

0.04×14282

≈ 571

$$\text{New Crime}_{\text{year 2}} = 14282 - 571 \\ = 13711$$

96% of New Crime

0.96×14282

13711

b) 10% of 15194
 0.10×15194

≈ 1519

No

$15194 - 1519$

13675

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 →

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

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

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

d)

$$14. \text{ 2005 Dec } \quad 6\% \text{ of } 15194$$
$$0.06 \times 15194$$
$$911.64$$

$$2005 \rightarrow 15194 - 912$$
$$14282$$

$$2006 \text{ Dec } \rightarrow 4\% \text{ of } 14282$$
$$0.04 \times 14282$$
$$571.28$$

$$2006 \rightarrow 14282 - 571$$
$$13711$$

15. a) $150\text{cm} = 90\%$ of $\text{cd}_u\text{H} \text{ ht}$

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

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

$$n = 166.\bar{7}\text{cm}$$

b) 98% of $n = 176$

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

$$n = 179.6$$

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

$$120\% = \$24 \times$$

Attachments

Extra Practice 1 Relating Fraction, decimal and percent.pdf