

## Grade 8 Warm Up

April 2



1) A three wheeler is on sale for 20% off the regular price of \$1500. What is the sale price?

$$\begin{aligned} \text{Save} &= 20\% \text{ off } \$1500 \\ &= 0.20 \times 1500 \\ \text{Save} &= 300 \end{aligned}$$

$$\text{Sale Price} = 1500 - 300 = \$1200$$

$$\begin{aligned} \text{Cost with tax} &\Rightarrow 1.15 \times 1200 \\ &= 1380 \end{aligned}$$



$$\begin{aligned} \text{tax} &= 0.15 \\ &\times 1200 \\ &= 180 \end{aligned}$$

$$\begin{aligned} \text{Cost with tax} &= 1200 + 180 \\ &= 1380 \end{aligned}$$

2) A backpack is on sale for 60% off. If the amount discounted is \$16.14, what is the regular price?

$$\text{Save} = 60\% \text{ of Reg}$$

$$16.14 = 0.60 \times R$$

$$\frac{16.14}{0.6} = \frac{0.60R}{0.6}$$

$$\boxed{\$26.90 = R}$$

3) The population of a village was 26 000 people in the year 2011. Due to very few job opportunities 15% of the people move away in 2012. In 2013 the population decreased by 5% that of 2012, what was the population at the end of 2013?

$$\text{Leave} = 15\% \text{ of pop } 26000$$

$$\text{Leaving} = 0.15 \times 26000$$

$$\text{Leave} = 3900$$

$$\begin{aligned} \text{New Pop} &= 26000 - 3900 \\ &= 22100 \end{aligned}$$

$$\begin{aligned} \text{Leave} &= 5\% \text{ of Prev} \\ &= 0.05 \times 22100 \\ &= 1105 \end{aligned}$$

$$\begin{aligned} \text{New Pop} &= 22100 \\ &- 1105 \\ \hline &20995 \end{aligned}$$

The population of 2013 is 20995

## Extra Practice - Sheet 4

$$1. a) \text{HST } 13\% \text{ of } 89.60$$

$$0.13 \times 89.60$$

$$11.64$$

$$\text{Total Cost } 89.60 + 11.64$$

$$101.24$$

$$b) \text{HST } 13\% \text{ of } 24.86$$

$$0.13 \times 24.86$$

$$3.23$$

$$\text{Total Cost } 24.86 + 3.23$$

$$28.09$$

$$2. a) \text{Disc } 30\% \text{ of } 74.99$$

$$0.3 \times 74.99$$

$$= 22.50$$

$$\text{Sale Price } = 74.99 - 22.50$$

$$52.49$$

$$\text{HST } 13\% \text{ of } 52.49$$

$$0.13 \times 52.49$$

$$6.82$$

$$\text{Total Cost } 52.49 + 6.82$$

$$59.31$$

$$b) \text{Disc } 25\% \text{ of } 74.99$$

$$0.25 \times 74.99$$

$$18.75$$

$$\text{Sale Price } 74.99 - 18.75$$

$$56.24$$

$$\text{HST } 13\% \text{ of } 56.24$$

$$0.13 \times 56.24$$

$$7.31$$

$$\text{Total Cost } 56.24 + 7.31$$

$$63.55$$

3. Notebook Computer  
\$1598 , 20% off

Disc 20% of 1598  
 $0.2 \times 1598$   
319.60

Sale Price  $1598 - 319.60$   
1278.40

HST 13% of 1278.40  
 $0.13 \times 1278.40$   
166.19

Total Cost  $1278.40 + 166.19$   
1444.59

$$4a) \text{ Amt of Dec} = \frac{1488 - 1100}{388}$$

$$\begin{aligned} \% \text{ Dec} &= \frac{\text{Amt of Dec}}{\text{Orig Amt}} \times 100\% \\ &= \frac{388}{1488} \times 100\% \\ &= 0.26 \times 100\% \\ &= 26\% \end{aligned}$$

$$\begin{aligned} \text{HST} &= 13\% \text{ of } 1100 \\ &= 0.13 \times 1100 \\ &= 143 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= 1100 + 143 \\ &= 1243 \end{aligned}$$

$$b) \text{ Amt of Dec } \frac{56.84 - 49.99}{6.85}$$

$$\begin{aligned} \% \text{ Dec} &= \frac{\text{Amt of Dec}}{\text{Orig Amt}} \times 100\% \\ &= \frac{6.85}{56.84} \times 100\% \\ &= 0.12 \times 100\% \\ &= 12\% \end{aligned}$$

$$\begin{aligned} \text{HST} &= 13\% \text{ of } 49.99 \\ &= 0.13 \times 49.99 \\ &= 6.50 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= 49.99 + 6.50 \\ &= 56.49 \end{aligned}$$

$$\begin{aligned} 5. a) 1^{\text{st}} \text{ Disc} &= 10\% \text{ of } 625 \\ &= 0.1 \times 625 \\ &= 62.50 \end{aligned}$$

$$\begin{aligned} 1^{\text{st}} \text{ Sale Price} &= 625 - 62.50 \\ &= 562.50 \end{aligned}$$

$$\begin{aligned} 2^{\text{nd}} \text{ Disc} &= 20\% \text{ of } 562.50 \\ &= 0.2 \times 562.50 \\ &= 112.50 \end{aligned}$$

$$\begin{aligned} 2^{\text{nd}} \text{ Sale Price} &= 562.50 - 112.50 \\ &= 450 \end{aligned}$$

$$\begin{aligned} 3^{\text{rd}} \text{ Disc} &= 20\% \text{ of } 450 \\ &= 90 \quad (\text{mentally}) \end{aligned}$$

$$\begin{aligned} 3^{\text{rd}} \text{ S.P} &= 450 - 90 \\ &= 360 \end{aligned}$$

$$\begin{aligned} b) \text{ Tax} &= 13\% \text{ of } 360 \\ &= 0.13 \times 360 \\ &= 46.80 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= 360 + 46.80 \\ &= 406.80 \end{aligned}$$

$n = \text{Reg Price}$

15% Disc

SP 84.99

$$\begin{aligned}\text{Disc} &= 15\% \text{ of Reg} \\ &= 0.15n\end{aligned}$$

$$1.00 - 0.15$$

$$\begin{aligned}\text{SP} &= \text{Reg} - \text{Disc} \\ &= n - 0.15n \\ 84.99 &= 0.85n\end{aligned}$$

6. 15% off

$$\begin{aligned}\text{Sale Price} &= \text{Reg} - \text{Disc.} \\ &= 100\% - 15\% \\ &= 85\% \text{ of reg}\end{aligned}$$

$$84.99 = 0.85n$$

$$\frac{84.99}{0.85} = \frac{0.85n}{0.85n}$$

$$100 = n$$

7. Choice A - 15% of 1250

$$0.15 \times 1250$$

$$187.50$$

- amount of disc

Choice B \$200 rebate

Choice B is better, you get more off.



1) 170% of 58

$$10\% \text{ of } 58 = 5.8$$

170% of 58 = 98.6

Round your answer to the nearest percent.

$$\frac{37}{33} = 1.1212121.. = 112\%$$

$$= 0.597... \times 100\%$$
$$= 597\%$$
$$= 60\%$$
$$= 1.35087719... \times 100\%$$
$$= 135\%$$
$$\begin{aligned}\text{New Pop} &= 905.4 + 5.4324 = 910.8324 \\ &= 911\end{aligned}$$

6. a) Write 15.5% as a fraction in simplest form and as a decimal.

$$\frac{15.5}{100} = \frac{155}{1000} = \frac{31}{200} = 0.155$$

b) Write 6 3/4% as a decimal then a fraction in simplest form.

$$\frac{6.75}{100} = \frac{675}{10\,000} = \frac{27}{400} = 0.0675$$

c) Write 0.54% as a fraction and as a decimal.

$$\frac{0.54}{100} = \frac{54}{10\,000} = \frac{27}{5000} = 0.0054$$

d) Write 18/240 as a decimal and as a percent.

$$\frac{18}{240} = \frac{9}{120} = 0.075 = 7.5\%$$

e) Write 0.003 as a fraction and a percent.

$$\frac{3}{1000} = 0.3\%$$

8) A candy bar has a mass of 44 g and contains 11 g of sugar.

What percent by mass of the bar is sugar?

$$\frac{11}{44} = \frac{1}{4} = 0.25 = 25\%$$

25% of the bar is Sugar

9) If 85% of the regular price is \$21.10, then what is the regular price

85% of Regular price is \$21.10

The regular price is \$24.83

$$0.85 \times n = \$21.10$$

$$\frac{0.85 \times n}{0.85} = \frac{\$21.10}{0.85}$$

$$0.85 \quad \quad \quad 0.85$$

$$n = \$24.83$$

10) There are 23 000 workers in a factory. The management decides to reduce the workforce by 18%. How many workers will the factory lay off?

18% of 23000 is \_\_\_\_\_

$$0.18 \times 23000$$

$$= 4140$$

11. Write the numbers in order from least to greatest.

$$\frac{7}{20}, 0.38, \frac{9}{25}, 32\%$$

Explain your strategy.

$$\frac{7}{20} = \frac{35}{100} = 0.35 = 35\%$$

$$0.38 = \frac{38}{100} = 38\%$$

$$\frac{9}{25} = \frac{36}{100} = 0.36 = 36\%$$

$$32\% = 0.32$$

$$32\%, \frac{7}{20}, \frac{9}{25}, 0.38$$

The Grade 8 students of a school must take on one of these activities: sing in the choir, play in the school band, or take part in a drama.

There are 21 students in the choir, 24 in the band, and 15 in the drama club.

What fraction of the students are involved in each activity? Write each fraction as a per

$$\begin{aligned} \text{Total} &= 21 + 24 + 15 \\ &= 60 \text{ students} \end{aligned}$$

$$\text{Choir } \frac{21}{60} = \frac{7}{20} = 35\%$$

$$\text{Band } \frac{24}{60} = \frac{2}{5} = 40\%$$

$$\text{Drama } \frac{15}{60} = \frac{1}{4} = 25\%$$

An antique vase was priced \$120. After 5 years, the value of the vase has increased by 20%.

What is the new price of the vase? Show your work

$$120\% \text{ of } \$120$$

$$1.2 \times \$120$$

$$\$144$$

The vase is valued at \$144

**What do you know about ratios?**

Discuss advertisements on pg. 264 with students.

**Ratios**

A ratio is a comparison between two or more things. There are three

forms in which you can write a ratio:

- 1) using a colon, 4 : 7
- 2) using the word "to", 4 to 7
- 3) as a fraction,  $\frac{4}{7}$  → compare to total

In each case, it is read as 4 to 7. A ratio does not mean much if you do not know what you are comparing. Therefore, it is always **important to state above the ratio what you are comparing:**

boys to girls

4 to 7

Also, **order is very important with ratios**. The ratio boys to girls is not the same as the ratio of girls to boys, because they are not in the same order.

You can have a two term or three term ratio.

A part to part ratio is comparing one part of a collection to another

part, for example boys to girls. A part to part ratio can not be written as a fraction.

Three-Term Ratio: compare three quantities to each other

A part to whole ratio is comparing one part of the collection to the whole collection, such as boys to all students.

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$

You can **find equivalent ratios the same way you find equivalent fractions**, multiply (or divide) each term by the same number.

ex. boys to girls an equivalent ratio is: b : g

$$\begin{array}{c} 4 \text{ to } 7 \\ 8 : 14 \\ 12 : 21 \end{array} \times 3$$

Putting a ratio in lowest terms, is the same as putting a fraction in lowest terms, divide by a common factor, until the terms have no more common factors.



## Two-Term Ratio

1. part-to-whole ratio

**Basketball : Whole**  
 $7 : 20$

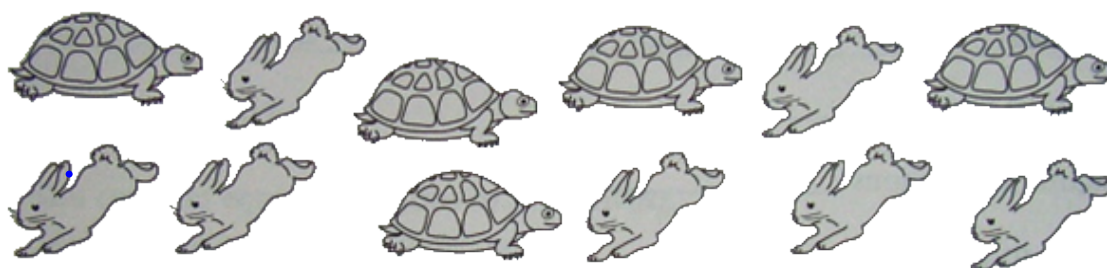
2. part-to-part ratio

**Base : Basket**  
 $8 : 7$

## Three-Term Ratio

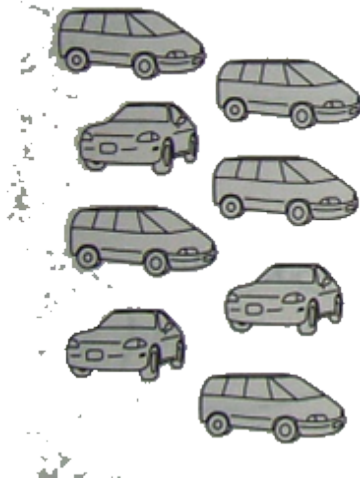
**Base : Basket : Golf**  
 $8 : 7 : 5$

Write each part-to-whole ratio as a ratio, a fraction and a percent.  
Round percents to 2 decimal places.

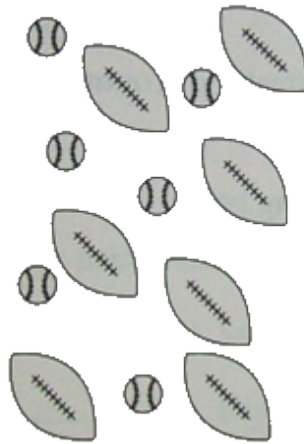


Write each part-to-part ratio.

a) cars to vans



b) footballs to baseballs



c) bananas to fruit



At a class party, there are 16 boys, 15 girls, and 4 adults.  
Show each ratio as many ways as you can.

a) boys to girls

b) boys to girls to adults

c) adults to total number of people at the party

a)  $B : G$   
 $16 : 15$

b)  $B : G : A$   
 $16 : 15 : 4$

c)  $A : \text{Total}$   
 $4 : 35$



# Class/Homework

~~4, 6, 9, 11, 12~~

Homework pg. 266 # ~~1-10~~, 4-15

5:8       $\frac{5}{8}$

# 4 a b

# 5 a b

# 6 all

# 7 a b

# 11 a)

# 14

Attachments

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Quiz on Percents (Mid Unit Feb 25).pdf