KEY

1.   Complete the following table

Fraction (lowest terms)	Decimal	Percent
$\frac{15}{100} = \frac{3}{20}$	0.15	15%
$\frac{85}{100} = \frac{17}{20}$	0.85	85%
$\frac{4}{5}$	0.8 or 0.80	80%
$\frac{40}{100} = \frac{4}{10} = \frac{2}{5}$	0.4	40%
$\frac{0.7}{100} = \frac{7}{1000}$	0.007	0.7%
$\frac{7}{8}$	0.875	87.5%
$\frac{0.03}{100} = \frac{3}{10000}$	0.0003	0.03%
$\frac{139}{100}$ or $1\frac{39}{100}$	1.39	139%
$\frac{11}{10}$	1.1	110%

2. In 1895, the population of a small town was 2120. By 1905, the population increased to 115% of the 1895 figure.

a) What was the population in 1905?

$$\frac{115}{100} = \frac{x}{2120} \qquad x = 2438$$

b) Find the increase in population from 1895 to 1905.

$$2438 - 2120 = 318$$

$$\frac{x}{100} = \frac{318}{2120} \qquad x = 15\%$$

3. Find the whole amount in each case.

a) 8% is 56 kg.

$$\frac{8}{100} = \frac{56}{x}$$

$$x = 700$$

b) 125% is 85 cm.

$$\frac{125}{100} = \frac{85}{x}$$

$$x = 68$$

c) 0.48% is 84 L.

$$\frac{0.48}{100} = \frac{84}{x}$$

$$x = 17500$$

4. In a sponsored walk for charity, 560 students participated. Of these, 0.72% completed the 15-km walk. How many students completed this distance?

$$\frac{0.72}{100} = \frac{x}{560}$$

$$x = 4 \text{ students}$$

only 4!!! why so few? weird!

5. Write each increase or decrease as a percent.

a) The price of gasoline rose from 132.5 cents/litre to 137.8 cents/litre.

Percent increase =

$$137.8 - 132.5 = 5.3$$

$$\frac{x}{100} = \frac{5.3}{132.5}$$

$$x = 4\%$$

b) The number of trucks crossing the border fell from 3240 to 2673.

Percent decrease =

$$3240 - 2673 = 567$$

$$\frac{x}{100} = \frac{567}{3240}$$

$$x = 17.5\%$$

6. A water tank is filled with 1500 L of water. In 1 hour, the tank loses 5.4% of the water due to leakage. What is the volume of water in the tank after 1 hour?

$$\frac{5.4}{100} = \frac{x}{1500}$$

$$x = 81$$

$$1500 - 81 = 1419 \text{ Litres}$$

7. HST is 12%. Calculate the selling price of each item before and after tax.

a) $125 item at 10% off

Before: $ 112.50

After: $ 126

$\frac{10}{100} = \frac{x}{125}$

$x = 12.5$

$125 - 12.5 = 112.50$

$\frac{12}{100} = \frac{x}{112.5}$

$x = 13.50$ $112.50 + 13.50$
                        $= 126$

b) $1820 item at 25% off

Before: $ 1365

After: $ 1528.80

$\frac{25}{100} = \frac{x}{1820}$

$x = 455$

$1820 - 455 = 1365$

$\frac{12}{100} = \frac{x}{1365}$

$x = 163.80$

$1365 + 163.80$

c) $6.80 item at 15% off

Before: $ 5.78

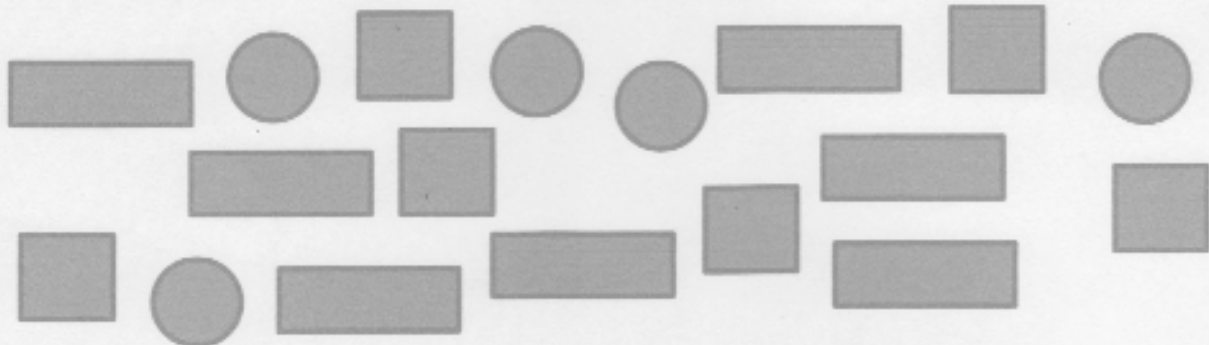After: $ 6.47

$\frac{15}{100} = \frac{x}{680}$

$x = 1.02$

$6.80 - 1.02 = 5.78$

$\frac{12}{100} = \frac{x}{5.78}$

$x = 0.69$

$5.78 + 0.69 = 6.47$

10. Write each ratio.

a) squares to circles

6 : 5

b) rectangles and circles to squares

12 : 6

c) circles to total figures

5 : 18

11. Write three ratios equivalent to 36:18. Show your work.

36:18 =   18 : 9
           6 : 3
           4 : 2
           2 : 1
           72 : 36

              etc.

12. Write each ratio in simplest form.

a) 25 : 15 =   5 : 3
$\div 5$ $\div 5$

b) 28 : 35 =   4 : 5
$\div 7$ $\div 7$

c) 45 : 72 =   5 : 8
$\div 9$ $\div 9$

13. Class 8B has 3 globes for every 7 students. Class 8D has 2 globes for every 5 students. Each class has the same number of students. Which class has more globes? Explain.

Strategy: find same second number

$$\frac{3}{7} = \frac{15}{35} \qquad \frac{2}{5} \quad > \quad \frac{14}{35}$$

×5   ×7

MORE. CLASS 8B has more globes.

14. At a summer camp, for every 3 students who sailed, 5 kayaked. Forty-five students kayaked. How many students sailed?

sail $\dfrac{3}{5}$ = $\dfrac{x}{45}$ $x = 27$
kayak

15. In a bag of coloured cubes, the ratio of red cubes to the total number of cubes is 5 : 7. If there are 105 cubes in the bag, how many cubes are red?

red $\dfrac{5}{7}$ = $\dfrac{x}{105}$ $x = 75$
total

16. Express as a unit rate.
a) The van travels 280 km in 4 hours.

$$\frac{280 \text{ km}}{4 \text{ hr}} = \frac{x}{1 \text{ hr}} \qquad x = 70 \text{ km/hr}$$

b) Mikki jogs 2 km in 20 min.

$$\frac{2}{20 \text{ min}} = \frac{x}{60 \text{ min}} \qquad x = 3 \text{ km/hr}$$

17. Which is the better buy?   2.9 L of detergent for $4.56 or 3.8 L for $5.78

$$\frac{\$4.56}{2.9 \text{ L}} = \frac{x}{1 \text{ L}} \qquad\qquad \frac{\$5.78}{3.8 \text{ L}} = \frac{x}{1 \text{ L}}$$

$x = \$1.57/L$ $x = \$1.52/L$

BETTER BUY