

Percents Cheat Sheet

Percent is a ratio out of 100.

$$\text{ie. } 43 \text{ out of } 100 = \frac{43}{100} \text{ or } 43\% \text{ or } 0.43$$

$$7 \text{ out of } 100 = \frac{7}{100} \text{ or } 7\% \text{ or } 0.07$$

Writing Percent as a decimal:

① Divide percent by 100

$$\text{ie. } 68\% \rightarrow 68 \div 100 = 0.68$$

$$162\% \rightarrow 162 \div 100 = 1.62$$

Writing a decimal as a percent

① Multiply decimal by 100

$$\text{ie. } 0.41 \rightarrow 0.41 \times 100 = 41\%$$

Writing a percent as a fraction

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

$$\text{ie. } 76\% = \frac{76}{100} \stackrel{\div 4}{=} \frac{19}{25} \text{ (lowest terms)}$$

$$15.5\% = \frac{15.5}{100} \stackrel{\times 10}{=} \frac{155}{1000} \text{ (get rid of decimal)}$$

$$\frac{155}{1000} \stackrel{\div 5}{=} \frac{31}{200}$$

$$\text{cont. } 33\frac{1}{3}\% = \frac{33\frac{1}{3}}{100} = \frac{\frac{100}{3}}{100}$$

$$\frac{\frac{100}{3}}{100} = \frac{100}{3} \div 100 = \frac{100}{3} \div \frac{100}{1}$$

$$\frac{100}{3} \times \frac{1}{100} = \frac{100}{300} = \frac{1}{3}$$

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Writing fractions as a percent:

① Divide top # by bottom #, Multiply by 100
ie $\frac{5}{8} = 5 \div 8 = 0.625 \times 100 = 62.5\%$

OR

② Write as a proportion

$$\frac{5}{8} = \frac{p}{100}$$

$$8 \times p = 5 \times 100$$

$$\frac{8p}{8} = \frac{500}{8}$$

$$p = 62.5$$

Percent Equation

$$\frac{\text{Part}}{\text{Whole}} = \frac{\%}{100}$$

- ① Fill in what you know and identify unknown
- ② Multiply
- ③ Divide

ie Part = 15 Whole = 60

$$\frac{15}{60} = \frac{\%}{100}$$

$$15 \times 100 = 60 \times$$

$$\frac{1500}{60} = \frac{60 \times}{60}$$

$$25 = \%$$

Simple Interest

$$I = p \cdot r \cdot t$$

p = principle

r = rate (% as decimal)

t = time (years)

ie. Principle = \$4200 Rate = 4% Time = 3 and a half years

$$I = (4200) \cdot (0.04) \cdot (3.5)$$

$$I = \$588$$

$$\begin{aligned} \text{total amount due} &= \text{Principle amount} + \text{interest} \\ &= \$4200 + \$588 \\ &= \$4788.00 \end{aligned}$$

ie $p = \$3800$ $r = 6\frac{1}{2}\%$ $t = 7$ months

$$\begin{aligned} I &= p \cdot r \cdot t \\ &= 3800 \times 6.5\% \times \frac{7}{12} \text{ (divide)} \\ &= 3800 \times 0.065 \times 0.5833333 \\ &= \$144.08 \end{aligned}$$

Finding Percent of Increase or Decrease

- * Use percent equation
- ① Subtract (Original - new)
 - ② Use difference as the part
 - ③ Use the original amount as the whole.

Finding Sale Price

- * Use percent equation
- ① Sale Price is Part
 - ② Original Price is whole
 - ③ % of sale is percent

Finding Rate of Commission or Commission Amount

- * Use percent equation
- ① Part is amount of commission
 - ② Whole is total sale
 - ③ Percent is rate of commission