



Warm Up Grade 8  
Feb. 19  
No Calculators



The grade 8 class put on a play on for the school on Wednesday and Thursday. If 80 people showed up for the play on Wednesday, how many showed up on Thursday if the attendance was 120% of Wednesday's attendance?

120% of Wed

120% of 80

$$100\% \text{ of } 80 = 80$$

$$10\% \text{ of } 80 = 8$$

$$20\% \text{ of } 80 = 16$$

$$120\% \text{ of } 80 = 80 + 16 = 96$$

On thursday there were 96 people

160% of 40

$$100\% \text{ of } 40 = 40$$

$$10\% \text{ of } 40 = 4$$

x6                      x6

$$60\% \text{ of } 40 = 24$$

$$160\% \text{ of } 40 = 40 + 24 \\ = 64$$

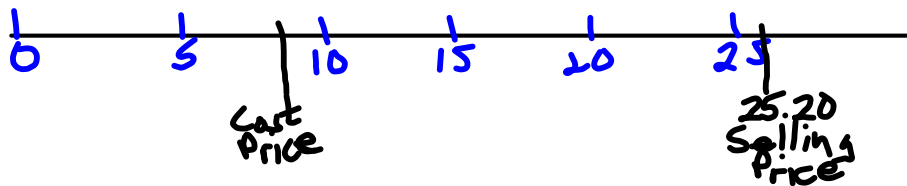
15% of \$12

$$\begin{array}{r} 10\% \text{ of } 12 = \$1.20 \\ \leftarrow \div 2 \qquad \qquad \qquad \div 2 \\ 5\% \text{ of } 12 = \$0.60 \\ \hline 15\% \text{ of } \$12 = \$1.80 \end{array}$$

Pg 246

	Percent	Decimal	
6.			
a) 1.7	170%	$\frac{170}{100}$	$\frac{17}{10}$
b) 3.3	330%	$\frac{330}{100}$	$\frac{33}{10}$
c) 0.003	0.3%	$\frac{0.3}{100}$	$\frac{3}{1000}$
d) 0.0056	0.56%	$\frac{0.56}{100}$	$\frac{56}{10000}$

7. 280% of 9  
 $2.8 \times 9$   
 25.20 - Selling Price



8. Giving 110% means putting more than expected into something.  
 → Doing what is expected and more

9. a) 2 examples > 100%  
 → Everything correct on a test plus the bonus  
 → The selling price of an item  
 selling price 250% of cost price

b) < 1%  
 → an increase in the dollar 0.25%  
 → Chance of winning a prize if  
 1000 tickets are sold  $\frac{1}{1000} = 0.001$   
 or 0.1%

10. (a)  $1/3 = 0.333\dots$  or 33.3%

$$2/3 = 0.666\dots \text{ or } 66.7\%$$

$$3/3 = 1.00 \text{ or } 100\%$$

$$4/3 = 1.333\dots \text{ or } 133.3\%$$

$$5/3 = 1.666\dots \text{ or } 166.7\%$$

$$6/3 = 2 \text{ or } 200\%$$

(b) Pattern

(c)  $7/3 = 2.333\dots$  or 233.3%

$$8/3 = 2.666\dots \text{ or } 266.7\%$$

$$9/3 = 3 \text{ or } 300\%$$

$$10/3 = 3.333\dots \text{ or } 333.3\%$$

$$11/3 = 3.666\dots \text{ or } 366.7\%$$

$$12/3 = 4 \text{ or } 400\%$$

12. 0.8% of runners completed in 2 h 15 min

0.8% of 618

$$0.008 \times 618$$

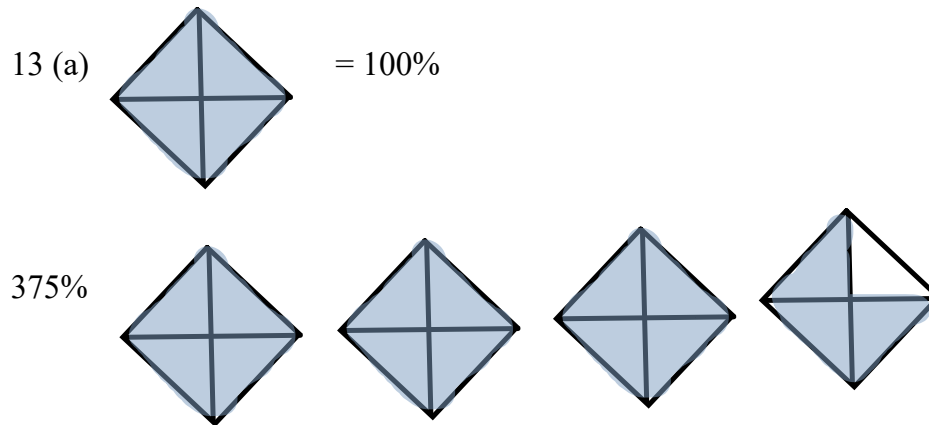
4.994 or 5 runners completed the run in the time

(b) Estimate

1% of 600

6

estimate is close



14. (a) Juan

5 % of 2600

$$0.05 \times 2600$$

130

$$\text{New Population} = 2600 + 130 = 2730$$

15% of 2730  
of new population

$$0.15 \times 2730$$

409.5 ( or 410)

$$\text{Final Population} = 2730 + 410 = 3140$$

(b) Jeremy

20 % of 2600

$$0.2 \times 2600$$

520

$$\text{Final Population} = 2600 + 520 = 3120$$

(c) The answers are not the same. Who is Correct?

Juan used the correct method

15. 140 % of attendance on Friday  
 $1.40 \times 120$   
 168 people attended on Saturday

- (b) Estimate  
 $100\% + 50\%$   
 $120 + 60$   
 180

16. (a) 0.75 % of 1888 population  
 0.75 % of 2000

Estimate 1 % of 2000  
 $(2000 \div 100)$   
 20

- (b) 0.75% of 2000  
 $0.0075 \times 2000$   
 15

- (c) Decrease in Population 2000 - 15  
 1985

17. Number of girls who signed up  
 195 % of boys  
 $1.95 \times 20$   
 39 girls signed up

26 attended auditions  
 $\frac{26}{39} = 0.666\dots$   
 $= 66.7\%$  of the signed up attended

## Percent Problems

There are 3 types of percent problems:

- finding the percent      ex. 15 out of 30  

$$\frac{15}{30} = 0.5 = 50\%$$

- finding the percent of a number  
 ex. 45% of 360      change to a decimal and multiply  

$$0.45 \times 360 = 162$$

- finding the number from a percent  
 ex. 60% of a number is 72
- (change % to decimal  
by  $\div$  by 100)*

- third type: **Must rearrange**

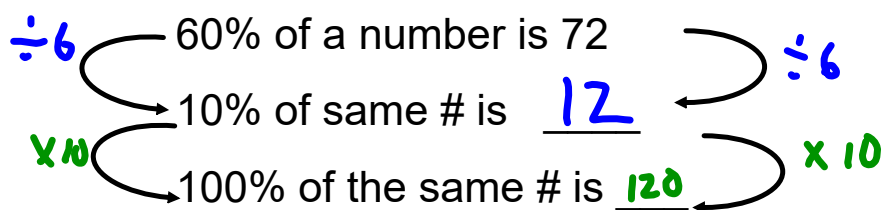
60% of a number is 72      Let n = the number

$$0.6 \times n = 72$$

$$\frac{0.6 n}{0.6} = \frac{72}{0.6}$$

$$n = 120$$

or





$$\begin{array}{l}
 30\% \text{ of a number} = 60 \\
 \downarrow \div 3 \\
 10\% \text{ of a number} = 20 \\
 \downarrow \times 10 \\
 100\% \text{ of a number} = \boxed{200}
 \end{array}$$

OR

Raelyn  
was here

$$\begin{array}{l}
 30\% \text{ of } n = 60 \\
 \downarrow \\
 0.30 n = 60
 \end{array}$$

$$\frac{0.30 n}{0.30} = \frac{60}{0.30}$$

$$\boxed{n = 200}$$

$$2n = 22$$

$$\frac{2n}{2} = \frac{22}{2}$$

$$n = 11$$

$$0.6n = 72$$

$$\frac{0.6n}{0.6} = \frac{72}{0.6}$$

$$n =$$

Examples:



1. Grady is 13 years old and 155 cm tall. His height at this age is about 90% of his final adult height. How tall would you expect Grady's adult height to be?

90% of adult height is 155 cm  
how do you find h?

$$0.90 h = 155 \text{ cm}$$

$$\frac{0.90 h = 155 \text{ cm}}{0.90} = \frac{155 \text{ cm}}{0.9}$$

$$h = 172 \text{ cm}$$

or

$$90\% \text{ of } h = 155 \text{ cm}$$

$$\div 9 \qquad \div 9$$

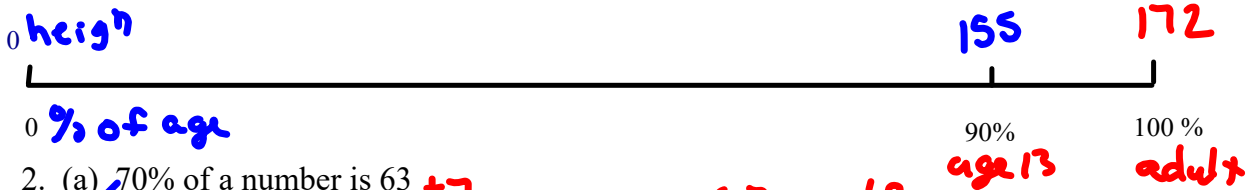
$$10\% \text{ of } h = 17.2 \text{ cm}$$

$$\times 10 \qquad \times 10$$

$$100\% \text{ of } h = 172 \text{ cm}$$

Showing a number line:

It doesn't matter which method you prefer to use, both will give the same answer.



2. (a) 70% of a number is 63

$$70\% \text{ of } n = 63$$

$$\times 10 \qquad \times 10$$

$$100\% \text{ of } n = 90$$

OR

$$\frac{0.70 n = 63}{0.70} = \frac{63}{0.70}$$

$$n = 90$$



(b) 175% of a number is 105 (Will the number be more or less than 105?)

$$1.75 n = 105$$

$$\frac{1.75 n = 105}{1.75} = \frac{105}{1.75}$$

OR

$$175\% \text{ of } n = 105$$

$$\div 7 \qquad \div 7$$

$$25\% \text{ of } n = 15$$

$$\times 4 \qquad \times 4$$

$$100\% \text{ of } n = 60$$



$$n = 60$$

3. (a) A length of 30 cm increased by 40%. What is the new length?  
(b) A mass of 50 g decreased by 17%. What is the new mass?



(a) Amount of increase = 40% of 30  
=  $0.4 \times 30$   
= 12

mentally

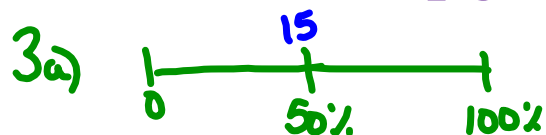
$$\begin{array}{l} 10\% \text{ of } 30 = 3 \\ \times 4 \qquad \qquad \times 4 \\ 40\% \text{ of } 30 = 12 \end{array}$$

$$\begin{array}{l} \text{New length} = 30 + 12 \\ = 42 \text{ cm} \end{array}$$

(b) Amount decrease = 17% of 50  
=  $0.17 \times 50$   
= 8.5g

$$\begin{array}{l} \text{New mass} = 50 - 8.5 \text{ g} \\ = 41.5 \text{ g} \end{array}$$

# Homework pg. 252 # 3,4, ~~5~~



$\times 2 \left( \begin{array}{l} 50\% \text{ of } n = 15 \\ 100\% \text{ of } n = \square \end{array} \right. \times 2$

STOP

$\underbrace{\begin{array}{cc} a & a \\ d & d \end{array}}$

If you need more  
do all 3abcd  
4abcd