

# Accelerated Math Notes

## Estimating Percents

### Section 6-2

\*We will use "nice" percents of "nice" numbers when we estimate the answer to problems which we will use the calculator to find the exact answer.

\*We are looking to use our multiplication/division facts along with compatible numbers.

\*We will try to use zeroes in our nice numbers, but we are not rounding.

Example: 24.2% of 3748

25% of 3600

$\frac{1}{4}$  of 3600  
900

not 3700 because 37 is not compatible with 4

The exact answer is  
907.016

$$.242 \times 3748 =$$

### "Nice" percent list

1% $\frac{1}{100}$	22 $\frac{2}{9}$ % $\frac{2}{9}$	55 $\frac{5}{9}$ % $\frac{5}{9}$	83 $\frac{1}{3}$ % $\frac{5}{6}$
5% $\frac{1}{20}$ or $\frac{10\% \div 2}$	25% $\frac{1}{4}$	60% $\frac{3}{5}$	87.5% $\frac{7}{8}$
10% $\frac{1}{10}$	30% $\frac{3}{10}$	62.5% $\frac{5}{8}$	88 $\frac{8}{9}$ % $\frac{8}{9}$
11 $\frac{1}{9}$ % $\frac{1}{9}$	33 $\frac{1}{3}$ % $\frac{1}{3}$	66 $\frac{2}{3}$ % $\frac{2}{3}$	90% $\frac{9}{10}$
12.5% $\frac{1}{8}$	37.5% $\frac{3}{8}$	70% $\frac{7}{10}$	100% 1
15% $\frac{3}{20}$ or $\frac{10\% + 5\% 40\% \times \frac{2}{5} \text{ or } 10\% \times 4$	40% $\frac{2}{5}$	75% $\frac{3}{4}$	
16 $\frac{2}{3}$ % $\frac{1}{6}$	44 $\frac{4}{9}$ % $\frac{4}{9}$	77 $\frac{7}{9}$ % $\frac{7}{9}$	
20% $\frac{1}{5}$	50% $\frac{1}{2}$	80% $\frac{4}{5}$	

For percents less than 1% estimate to a fraction that is close to the percent.

Example: On a team of 56 football players, about how many will have O+ blood?

36% of 56

40% of 55

$\frac{2}{5} \times \frac{1}{5} \rightarrow \frac{11}{22}$

37.5% of 56

$\frac{3}{8}$   
 $\frac{1}{8}$  of 56 =  $\frac{7}{3}$

21

### Population Blood Types

O	positive	36%
O	negative	6%
A	positive	38%
A	negative	6%
B	positive	8%
B	negative	2%
AB	positive	3.5%
AB	negative	0.5%

33 $\frac{1}{3}$ % of 60

$\frac{1}{3}$

20

40% of 60

10% x 4

6 x 4  
24

1) In a class of 29 students, about how many will have A+ blood?

38% of 29

37.5% of 32

$\frac{3}{8}$   $\frac{1}{8}$  of 32 = 4 (12)

2) In a city of 62,000 people, about how many will have AB negative blood?

0.5% of 62000

$\frac{1}{2}$   
1% of 62000 = 620  $\div 2$

310

3) A city's population is just over 4,010,117. About how many people will have type B blood?

10% of 4,010,000

401,000

4) There are 562 students enrolled at LMS. How many would you expect to have O negative blood?

6% of 562

5% of 600

10%  $\div 2$

60  $\div 2$

30

10% of 500

50

Estimate the sale price of a soccer ball that regularly sells for \$14.95 and is advertised with a discount of 15%.

$85\%$  of  $14.95$

$87.5\%$  of  $.16$   
 $\frac{7}{8}$   $\frac{1}{8}$  of  $16 = 2$   
 $\times 7$   
 $\$14$

$83\frac{1}{3}\%$  of  $12$   
 $\frac{5}{6}$   $\frac{1}{6}$  of  $12 = 2$   
 $\times 5$   
 $\$10$

Suppose you have just purchased a new game system for \$398 and the sales tax in your state is 4.75%. Estimate the amount of sales tax on this purchase.

$4.75\%$  of  $398$

$5\%$  of  $400$   
 $\frac{1}{20}$   $\$20$

We can estimate a percent if we make the part and whole "nice" numbers.

Estimate the percent for  $\frac{17}{30}$

$\frac{15}{30} \rightarrow 50\%$

$\frac{17}{30} \rightarrow 50\%$

Estimate the percent for  $\frac{118}{491}$

$\frac{120}{500} \rightarrow 24\%$   
 $\frac{120}{480} \frac{1}{4} \rightarrow 25\%$   
 $\frac{100}{500} = \frac{1}{5} = 20\%$

Estimate the percent for  $\frac{34}{88}$

$\frac{30}{90} = \frac{1}{3} \rightarrow 33\frac{1}{3}\%$

$\frac{33}{88} = \frac{3}{8} \rightarrow 37.5\%$

Estimate the percent for  $\frac{273}{716}$

$\frac{270}{720} \cdot \frac{3}{8} \rightarrow 37.5\%$

Estimating

Find  $\frac{1}{5}\%$  of 3743

$(1\% \div 5)$  of  $4000$   
 $1\%$  of  $4000 = 40$   
 $40 \div 5 = 8$

Find  $\frac{3}{8}\%$  of 756

$(\frac{1}{8}\% \times 3)$  of  $800$   
 $\downarrow$   
 $1\% \div 8$   
 $1 \times 3$   
 $3$

Find  $\frac{1}{2}\%$  of 24,679

$(1\% \div 2)$  of  $25000$   
 $250 \div 2$   
 $125$

$(1\% \div 2)$  of  $24,800$   
 $248 \div 2$   
 $124$

Find  $0.23\%$  of 2783

$.25\%$   
 $\frac{1}{4}\%$   
 $(1\% \div 4)$  of  $2800$   
 $28 \div 4$   
 $7$