

1)  $\frac{5}{11} + \frac{2}{11} = \frac{7}{11}$

2)  $\frac{5}{11} \cdot \frac{2}{11} = \frac{10}{121}$

3)  $\frac{4}{8} \cdot \frac{4}{4} = \frac{16}{32}$   
 $\frac{5}{4}$  or  $1\frac{1}{4}$

4)  $5\frac{3}{5} + 1\frac{6}{7}$   
 $\frac{21}{35} + \frac{30}{35} = \frac{51}{35}$   
 $\frac{16}{5} + \frac{65}{35} = \frac{716}{35}$  or  $\frac{261}{35}$

5)  $(2\frac{2}{3})^2$   
 $(\frac{8}{3})^2 = \frac{64}{9}$   
 or  $7\frac{1}{9}$

6)  $5\frac{1}{2} \div 1\frac{2}{3}$   
 $\frac{11}{2} \cdot \frac{3}{5} = \frac{33}{10}$   
 or  $3\frac{3}{10}$

7)  $84.3 + 9.84$   
 $94.14$

8)  $84.3 - 9.84$   
 $74.46$

9)  $84.3 \cdot 9.84$   
 $843$   
 $984$   
 $3372$   
 $6744$   
 $7587$   
 $829512$

10)  $(0.02)^3 = 0.000008$

11)  $\sqrt{64000000} = 8000$

12) Convert fractions to decimals and decimals to reduced fractions.

a)  $\frac{53}{1000} = 0.053$

b)  $\frac{8}{25} = 0.32$

c)  $0.087 = \frac{87}{1000}$

d)  $0.425 = \frac{425}{1000} = \frac{17}{40}$

13) Use short division. Leave your answer as a mixed number:  
 $56083 \div 6$

$$9347\frac{1}{6}$$

$$6 \overline{) 56083}$$

14) Use long division and leave your answer as an exact decimal (perhaps repeating).  
 $0.000823 \div 0.055$

$$.0149\overline{63}$$

$$55 \overline{) 10.823}$$

$$\begin{array}{r} -55 \\ \hline 273 \\ -220 \\ \hline 530 \\ -495 \\ \hline 350 \\ 330 \\ \hline 200 \\ -165 \\ \hline 35 \end{array}$$

15) Give Prime Fact of 35,100

$$35100 = 351 \times 100$$

$$= 9 \times 39 \times 10 \times 10$$

$$= 3^3 \times 2^2 \times 5^2 \times 13$$

15) Challenge! Do only if you have extra time

$$\frac{6\frac{1}{4}}{\frac{3}{4}}$$

$$\frac{1}{9} + \frac{5 - 3\frac{2}{3}}{3}$$

$$\frac{29}{4} \cdot \frac{4}{3}$$

$$\frac{1}{9} + \frac{1\frac{1}{3}}{3}$$

$$\frac{4}{3} \cdot \frac{1}{3}$$

~~$$\frac{29}{4} \cdot \frac{4}{3}$$~~
~~$$\frac{1}{9} + \frac{1\frac{1}{3}}{3}$$~~

$$15$$

$$\frac{29}{3}$$

$$\frac{5}{9}$$

~~$$\frac{29}{4} \cdot \frac{4}{3}$$~~
~~$$\frac{1}{9} + \frac{1\frac{1}{3}}{3}$$~~

**Measurement Test** Name: \_\_\_\_\_

1) 39 cm = 0.39 m

2) 12 gal = 48 qt

3) 4.9l = 4900 ml

4) 2 lb = 32 oz

5) 630cm = ~~6.3~~ 6.3 m

~~6) 5 gal = 20 qt~~      6) 6qt =  $1\frac{1}{2}$  gal

7) 0.87l = 870 ml

~~8) 10 lb = 160 oz~~      8) 20oz =  $1\frac{1}{4}$  lb

9) 900mg = 0.0009 kg

10) 3½ yd = 10½ ft

11) 0.79mm = 0.079 cm

12) 400 fl.oz. = 12½ qt

13) 0.05km = 50 m

14) 1½ ton = 48,000 oz

15) 0.62ml = 0.00062 l

16) 100 mi = 528,000 ft

17) 49m = 49,000 mm

18) 6 pt =  $\frac{3}{4}$  gal

19) 1.43km = 1,430,000 mm

20) 5¾ c = 46 fl.oz.

21) A rope is 7.4m long. If you cut off 25cm from each end, and then divide the remainder into ten equal segments, how long (in cm) is each of the resulting segments?

$$740\text{cm} - 50 = 690\text{cm}$$

$$\downarrow +10$$

69cm

22) A wooden box weighs 2.7kg when empty. How much does it weigh (in kg) if it is filled with 2000 marbles each weighing 800mg?

$$\begin{aligned} &\hookrightarrow 0.8\text{g} \\ &\hookrightarrow .0008\text{kg} \\ &\downarrow \times 2000 \\ &1.6\text{kg} \\ &+ 2.7\text{kg} \\ &\hline &\text{4.3kg} \end{aligned}$$

## Ratios, Part I – Test

1) Given that the ratio of boys to girls in a school is 4 to 5...  $B:G = 4:5$

a) What are the three thoughts associated with this ratio? Write each thought only as an equation.

$$B = \frac{4}{5}G$$

$$G = \frac{5}{4}B$$

$$5B = 4G$$

b) How many girls are there if there are 360 boys?

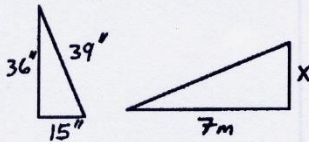
450

c) How many of each are there if there are 360 boys and girls combined?

$$\frac{4}{9} \quad \frac{5}{9}$$

160 Boys 200 Girls

2) Find X given that the two triangles are similar:



$$B:4 = 5:12$$

$$X = \frac{5}{12} \cdot 7$$

$$X = \frac{35}{12} = 2 \frac{11}{12}m$$

$$\approx 2.92m$$

3) A recipe for salad dressing calls for 10 fl.oz. of oil and  $1\frac{1}{2}$  fl. oz. of vinegar.

a) What is the ratio of oil to vinegar in whole number form?

$$O:V = 20:3$$

b) What is the ratio of oil to vinegar in decimal form?

$$O:V = 6.\bar{6}:1$$

c) If the recipe is to be enlarged, how much oil is needed for 6 fl. oz. of vinegar?

40 fl oz.

4) Give the reciprocal of each ratio.

a)  $J:G = 9:4$

$$G:J = 4:9$$

b)  $B:C = 5.5:1$   $55:10$

$$C:B = 0.\bar{18}:1 \quad 11:2$$

5) Convert this ratio to decimal form:

$$J:G = 9:4$$

$$J:G = 2.25:1$$

6) Convert this ratio to whole number form:

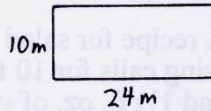
$$B:C = 5.5:1$$

$$B:C = 11:2$$

7) What can be said about any two similar figures?

- ① same shape
- ② same angles
- ③ Lengths of sides are in the same ratio.

8) Write the four ways to express the ratio of this rectangle's dimensions:



$$B:H = 12:5$$

$$H:B = 5:12$$

$$B:H = 2.4:1$$

$$H:B = 0.41\bar{6}:1$$

9) Challenge!

(Do only if you have extra time.)

What is the ratio of the weights (in whole form) of Bob to Fred to Hank if Bob weighs 45kg and Fred weighs 135 lbs. and Hank weighs 18 stone? (Hint: 1kg ≈ 2.2 lbs. and 1 stone = 14 lbs.)

$$B:F:H = 99 : 135 : 252$$
$$= 11 : 15 : 28$$

# Percents — Test

Name: 7<sup>th</sup> Grade Practice Test

Do the problems in this column in your head, if you can.

1) Convert to a percent:

a)  $\frac{9}{100}$   $9\%$

b)  $\frac{3}{8}$   $37\frac{1}{2}\%$

c)  $\frac{13}{50}$   $26\%$

d) 0.81  $81\%$

2) Convert to a fraction:

a) 15%  $\frac{15}{100} \rightarrow \frac{3}{20}$

b) 3%  $\frac{3}{100}$

3) Convert to a decimal:

a) 3%  $0.03$

b) 5.3%  $0.053$

4) What is...

a) 20% of 55?  $11$

b) 1% of 5240?  $52.4$

c) 200% of 35?  $70$

d) 5% of 300?  $\frac{1}{20} \times 300 \rightarrow 15$

e)  $62\frac{1}{2}\%$  of 320?  $\frac{5}{8} \cdot 320 \rightarrow 200$

5) a) 12 is what % of 120?

$\frac{12}{120} \rightarrow \frac{1}{10} \rightarrow 10\%$

b) 700 is what % of 2100?

$\frac{700}{2100} \rightarrow \frac{1}{3} \rightarrow 33\frac{1}{3}\%$

6) Show your work for these problems. (When dividing, leave your answer rounded to three significant digits.)

a) What is 42% of 30?

$.42 \times 30$

$12.6$

b) What is 5.03% of \$2000?

$0.0503 \times 2000$

same as  $50.3 \times 2$

$100.6$

c) 240 is what percent of 300?

$\frac{240}{300} \rightarrow \frac{4}{5} \rightarrow 80\%$

d) 120 is 25% of what number?

$120 \times 4 \rightarrow 480$

7) **Increase/Decrease Problems**

a) What is 3000 increased by 7%?

$$7\% \rightarrow 210$$

$$3000 + 210 \rightarrow 3210$$

b) What is 60 decreased by 40%?

$$40\% \rightarrow 24$$

$$60 - 24 \rightarrow 36$$

c) Going from 40 up to 64 is what percent increase?

$$64 - 40 \rightarrow 24$$

$$\frac{24}{40} \rightarrow \frac{6}{10} \rightarrow 60\%$$

d) 64 down to 40 is what percent decrease?

$$\frac{24}{64} \rightarrow \frac{3}{8} \rightarrow 37\frac{1}{2}\%$$

8) **Word Problems**

a) What is John required to pay for a pair of shoes marked at \$42 if there is a 8% sales tax?

$$42 \times 0.08 \rightarrow 3.36$$

$$3.36 + 42 \rightarrow \$45.36$$

b) An item originally marked at \$144 is now offered at a discounted price of \$108. What percent discount is that?

$$144 - 108 \rightarrow 36$$

$$\frac{36}{144} \rightarrow \frac{1}{4} \rightarrow 25\%$$

c) *Do this problem last.*

Debbie put \$400 into an account that earns 5% annually. What is the balance of the account after three years?

Year #	Int.	Balance
0		400
1	20	420
2	21	441
3	22.05	\$463.05

# Percents – Test

Name: 7<sup>th</sup> Grade Real Test

Do the problems in this column in your head, if you can. (Don't spend much time on them.)

1) Convert to a percent:

- a)  $\frac{3}{4}$  75%
- b)  $\frac{7}{10}$  70%
- c)  $\frac{2}{3}$  66 $\frac{2}{3}$ %
- d)  $\frac{7}{20}$  35%
- e) 0.23 23%
- f) 0.085 8.5%

2) Convert to a fraction:

- a) 90%  $\frac{9}{10}$
- b) 7%  $\frac{7}{100}$
- c) 87 $\frac{1}{2}$ %  $\frac{7}{8}$

3) Convert to a decimal:

- a) 86% 0.86
- b) 2% 0.02

4) What is...

- a) 10% of 800? 80
- b) 1% of 534? 5.34
- c) 50% of 18? 9
- d) 700% of 11? 77
- e) 20% of 45? 9
- f) 83 $\frac{1}{3}$ % of 42? 35

5) a) 6 is what % of 48? 12 $\frac{1}{2}$ %

b) 7 is what % of 21? 33 $\frac{1}{3}$ %

c) 16 is what % of 20? 80%

Show your work for these problems:

Calculate each one in order to get an exact answer. When dividing, leave your answer rounded to three significant digits.

6) What is 14% of 900?

126

7) 90 is what percent of 120?

75%

8) 115 is what percent of 200?

57 $\frac{1}{2}$ %



9) What is 45 increased by 60%?

72

10) 416 is what percent less than 640?

35%

11) A pair of boots were originally \$75.  
What would be the price after a  
15% discount?

63.75

12) What is the tax rate if you had to  
pay \$88.20 for a meal that was \$84  
before tax?

5%

13) If an account increases by 3% per  
year, what would be the balance  
after two years if the initial  
investment is \$800?

846.72

7<sup>th</sup> Grade

**Algebra Test**

Name: \_\_\_\_\_

**Simplify.**

1)  $-3 + 8$      5

2)  $2 - 12$      -10

3)  $-4 - 11$      -15

4)  $-20 + 5$      -15

5)  $-6 - 7 + 30$      17

6)  $(-2)(5)$      -10

7)  $(-7)(-5)$      35

8)  $(18) \div (-9)$      -2

9)  $\frac{-24}{-3}$      8

10)  $10 - -3$      13

11)  $-3 + -6 - +9 - -4$

-14

12)  $7X + 4 - X$

$6X + 4$

13)  $6X + 5$

Can't simplify  
 $6X + 5$

14)  $-4X - 3 - 3X + 8$

$-7X + 5$

15)  $8Y + 3X - 5 + X - 2$

$4X + 8Y - 7$

**Solving Equations**

Be sure to show what is done to each side with each step.

16)  $4X = 32$

$\div 4 \quad \div 4$

$X = 8$

17)  $X + 10 = 2$

$-10 \quad -10$

$X = -8$

18)  $X - 3 = 5$

$+3 \quad +3$

$X = 8$

19)  $5 \cdot \frac{X}{5} = 10 \cdot 5$

$X = 50$

(Please Turn Over →)

Solve each equation. Once again, be sure to show all of the steps.

20)  $6X + 3 = 2X - 9$

$$\begin{array}{r} -2x \quad -2x \\ \hline 4x + 3 = -9 \\ -3 \quad -3 \\ \hline 4x = -12 \\ \div 4 \quad \div 4 \\ \hline \boxed{x = -3} \end{array}$$

21)  $5X - 3 + X = 6 + 14X - 11$

$$\begin{array}{r} 6x - 3 = 14x - 5 \\ -14x \quad -14x \\ \hline -8x - 3 = -5 \\ +3 \quad +3 \\ \hline -8x = -2 \\ \div -8 \quad \div -8 \\ \hline \boxed{x = \frac{1}{4}} \end{array}$$

22) Challenge! (Do only if you have extra time.)

$$-\frac{1}{5}X - \frac{3}{4} - \frac{2}{3}X = \frac{5}{6} - X - 3$$

$$\begin{array}{r} -\frac{13}{15}x - \frac{3}{4} = -x - 2\frac{1}{6} \quad \rightarrow -\frac{13}{6} \\ +x \quad +x \\ \hline \frac{2}{15}x - \frac{3}{4} = -\frac{13}{6} \quad -\frac{26}{12} \\ +\frac{3}{4} \quad +\frac{3}{4} \quad \frac{9}{12} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{15}x = -\frac{17}{6} \\ \div \frac{2}{15} \quad \div \frac{2}{15} \\ \hline x = -\frac{17 \cdot 15}{6 \cdot 2} \end{array}$$

$$\boxed{x = -\frac{85}{8} \text{ or } -10\frac{5}{8}}$$