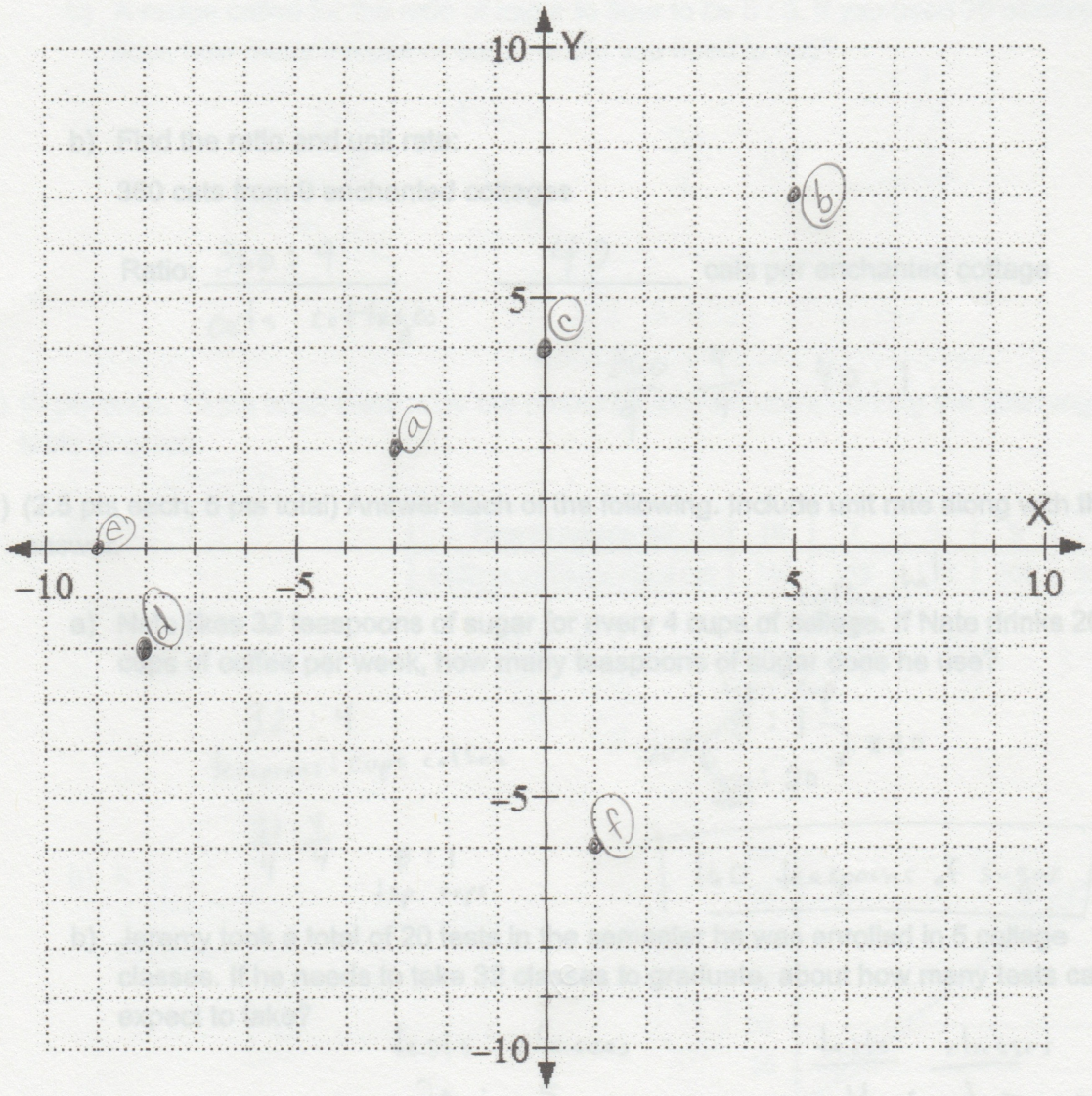
Key

Math Fundamentals Unit 3 Pre-Test

1.) (2.5 pts each, 15 pts total) Plot each of the following points.

a) (-3, 2)
b) (5, 7)
c) (0, 4)
d) (-8, -2)
e) (-9, 0)
f) (1, -6)



2.) (2.5 pts each, 5 pts total) Find the ratio and unit rate of each.

a) It costs $112 dollars for a group of 8 people to watch Avengers: Endgame.

Ratio $112 : 8

$\frac{112}{8} : \frac{8}{8}$

14 : 1

This is a rate of $14 dollars per person.

b) Find the ratio and unit rate:

360 cats from 9 enchanted cottages

Ratio: 360 : 9 (cats : cottages)

40 cats per enchanted cottage

$\frac{360}{9} : \frac{9}{9}$ 40 : 1

3.) (2.5 pts each, 5 pts total) Answer each of the following. Include unit rate along with the answer.

a) Nate likes 32 teaspoons of sugar for every 4 cups of ~~college~~ coffee ha! If Nate drinks 20 cups of coffee per week, how many teaspoons of sugar does he use?

32 : 4

teaspoons : cups coffee

$\frac{32}{4} : \frac{4}{4}$

8 : 1

tsp cups

tsp cup

20 × (8 : 1) × 20

160 : 20

160 teaspoons of sugar

b) Jeremy took a total of 20 tests in the semester he was enrolled in 5 college classes. If he needs to take 32 classes to graduate, about how many tests can he expect to take?

tests : classes

20 : 5

$\frac{20}{5} : \frac{5}{5}$

tests : classes

4 : 1

tests classes

32 × (4 : 1) × 32

128 : 32

128 tests

4.) (5 pts each, 10 pts total) Solve each using ratios. Include unit rate along with your answer.

a) At the baseball stadium, it costs $39.68 for 7 hot dogs. If you wanted to buy a very conservative snack of 16 hot dogs, how much would it cost?

$39.69

5.67
7 | 39.69
-35
46
-42
49
-49
0

$: hot dog

$\frac{\$39.68}{7} : \frac{7}{7}$

16x → $5.67 : 1 hot dog
16 hotdogs

4 4
5.67
× 16
3402
5670
9072

$90.72

b) A recipe called for the ratio of sugar to flour to be 8 : 5. If you used 70 ounces of flour, how many ounces of sugar would you need to use?

Sugar	Flour
8	5
112	70

14x

$\frac{70}{5} = 14$

3
14
× 8
112

112 ounces of sugar

5.) (5 pts each, 10 pts total) Determine the proportionality constant utilizing the following table or graph.

a) k = 34

Time in minute (x)	10	7	5	9	3
Gallons of Water Used (y)	340	238	170	306	102

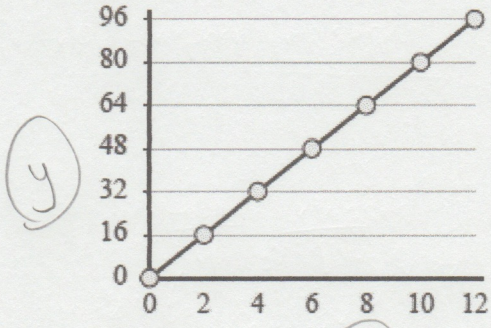
$y = kx$

$k = \frac{y}{x}$

$\frac{340}{10} = 34$ $\frac{238}{7} = 34$ $\frac{170}{5} = 34$

b) k = 8

Equation: $y = 8x$



$y = kx$

$k = \frac{y}{x}$ $\frac{16}{2} = 8$ $\frac{64}{8} = 8$ $\frac{32}{4} = 8$

6.) (5 pts each, 10 pts total) Use your knowledge of proportions to answer each of the following:

a) A phone store earned $112.32 after they sold 18 phone cases. Write an equation that can be used to express the relationship between the total money earned (t) and the number of cases(c) sold.

t c

$$18\overline{)112.32} \quad 6.24$$

-108

43

-36

72

-72

0

$t = kc$

$\frac{\$112.32}{18} = \frac{18k}{18}$ $\quad k = \$6.24$

$t = \$6.24c$

or

$y = \$6.24x$

b) $\frac{\square}{25} = \frac{64}{100}$

7.) (2.5 pts each, 10 pts total) Use you knowledge of conversions to answer each of the following:

a) 18 centimeters = 0.18 m

$18\text{ cm} * \frac{1\text{ m}}{100\text{ cm}} = \frac{18}{100} = 0.18$

b) 306 millimeters = 3,060 cm

$306\text{ mm} * \frac{100\text{ cm}}{1000\text{ mm}} = 3060\text{ cm}$

c) 9 kilograms = 9,000 g

$9\text{ kg} * \frac{1000\text{ g}}{1\text{ kg}} = 9000\text{ g}$

d) 834 milliliters = 0.834 L

$834\text{ mL} * \frac{1\text{ L}}{1000\text{ mL}} = 0.834\text{ L}$

8.) (2.5 pts each, 5 pts total) Convert each percent to a decimal.

a) 68%

by definition, percent means "per 100"

$\frac{68}{100}$ so we move the decimal point two places to the left.

68. → 0.68

b) 125%

$\frac{125}{100}$ → 125. → 1.25

9.) (2.5 pts each, 5 pts total) Convert each number to a percent.

a) 0.89

percent means "per 100" so we move the decimal point two places to the right

$\frac{89}{100}$ → .89 → 89%

b) 4.36

4.36 → 436%

10.) (5 pts each, 10 pts total) Use your knowledge of percents to answer each of the following:

a) What is 75% of 64?

Convert to math!

$\_\_ = 0.75 \times 64$

$$\begin{array}{r} {\scriptstyle 2} \\ 64 \\ \times\ 0.75 \\ \hline 320 \\ 4480 \\ \hline 4800 \end{array}$$

← since two digits after the decimal, we move the decimal two places

48.00 or 48

b) Nate ate 288 pounds of fudge last month. If he expects to eat 20% more fudge this month than last, how much fudge is he expected to eat this month?

20% of 288 is 0.2 * 288

57.6 pounds

Since it is an increase, we add

57.6 + 288

$$\begin{array}{r} 288 \\ \times\ 0.2 \\ \hline 57.6 \end{array}$$

$$\begin{array}{r} 288.0 \\ +\ 57.6 \\ \hline 345.6 \end{array}$$

345.6 lbs

11.) (2.5 pts each, 5 pts total) Divide each.

a) Round to the hundredths place.

$$42\overline{)7280.00} = 173.333$$

$$\begin{array}{r} -42 \\ \hline 308 \\ -294 \\ \hline 140 \\ -126 \\ \hline 140 \\ -126 \\ \hline 140 \\ 126 \end{array}$$

173.33

round to here!

b) Round to the hundredths place.

$0.56\overline{)42.78}$

76.39

$$56\overline{)4278.000} = 76.392$$

$$\begin{array}{r} -392 \\ \hline 358 \\ -336 \\ \hline 220 \\ -168 \\ \hline 520 \\ -504 \\ \hline 160 \\ -112 \end{array}$$

12.) (2.5 pts each, 10 pts total) Solve each problem.

a) 78.006 – 28.739

$$\begin{array}{r} {\scriptstyle 6\,17\,9\,9} \\ 78.006 \\ -\ 28.739 \\ \hline 49.267 \end{array}$$

49.267

b) 43.917 + 8.097

  43.917
+ 8.097
52.014

52.014

c) 36.46 × 19.08

     36.46
  × 19.08
     29168
  3281400
  3646000
  6956568

since there are 4 numbers to the right of decimal points,

695.6568

d) **Round to the nearest hundredth.**

14.082 ÷ 3.2

3.2 | 14.082

4.40

       4.400
32 | 140.8200
  -128
     128
   -128
        02
       -0
        20