You may use a calculator, but be sure to show all of your work!

Name _____

Take Home and Check – Unit 2 Part 1 Tiers A, B, C

A, B, C

Ann, Bob and Cal work in the mall. Below is a table showing the amount of money each made for the hours worked this week.

Person	Hours	Money
Ann	20	$200.00
Bob	10	$105.00
Cal	16	$184.00

SHOW ALL OF YOUR WORK!

1) Who makes the least money per hour?

2) Who make the most per hour?

$Ann = \dfrac{200}{20} = \$10/hr$

$Bob = \dfrac{105}{10} = \dfrac{\$10.50}{hr}$

$Cal = \dfrac{184}{16} = \dfrac{\$11.50}{hr.}$

1) Least = Ann

2) Most = Cal

A, B, C

3) The flight from Oakland to Salt Lake City was 720 miles and took 180 minutes. Make a unit rate.

3)

$\dfrac{720 \text{ miles}}{180 \text{ mins}} = \dfrac{4 \text{ miles}}{1 \text{ min}}$

4) Jonathan can jog $3\frac{2}{5}$ miles in $\frac{7}{8}$ hour. Find how many miles he jogs in an hour. *Do not change to decimals, until the end.*

$$\frac{3\frac{2}{5}}{\frac{7}{8}} = \frac{\frac{17}{5}}{\frac{7}{8}}$$

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$$\frac{17}{5} \times \frac{8}{7} = \frac{136}{35} = \boxed{\frac{3.89 \text{ miles}}{1 \text{ hr.}}}$$

5) Use the table to determine how many people ate if 426 grapes were used?

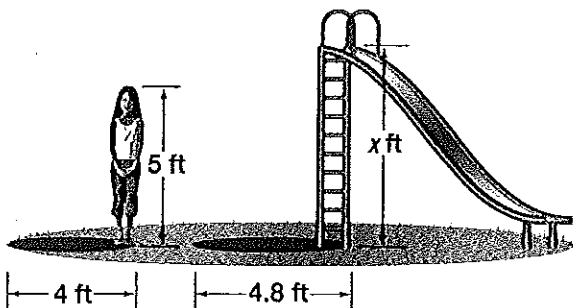| people	grapes
1	6
5	30
?	426

$$\frac{426}{6} = \boxed{71 \text{ grapes}}$$

(

6) How tall are the stairs on the slide?

$$\frac{5}{4} = \frac{x}{4.8}$$

$$\frac{4x}{4} = \frac{24}{4}$$

$$\boxed{x = 6 \text{ ft}}$$

5 ft

x ft

|— 4 ft —| |— 4.8 ft —|

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7) Tell what the unit rate is in the graph below. Explain your answer.

Money Earned for School (y-axis) vs **Cookies Sold** (x-axis)
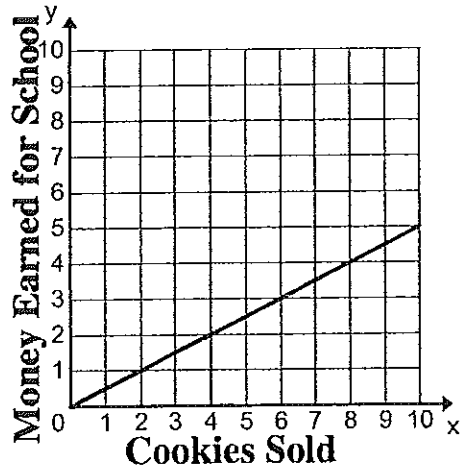
7)

$$\frac{\$1}{2 \text{ cookies}}$$

$$\frac{\$.50}{\text{cookie}}$$

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8) John earns $350 a week (gross pay). His take-home pay, however, is $295. This is because taxes are taken out of the gross pay. What is the ratio of his gross pay to his take-home pay.

8)

$$\frac{350}{295} = \frac{\$70 \text{ gross}}{\$59 \text{ take-home}}$$

9) A drawing of a surfboard in a catalog shows its length as 8 inches. Find the actual length of the surfboard if $\frac{1}{2}$ inch length on the drawing corresponds to $\frac{3}{8}$ foot of actual length.

9)

$$\frac{New}{Original} = \frac{.5}{\frac{3}{8}} = .375$$

$$\frac{.5}{.375} = \frac{8}{X}$$

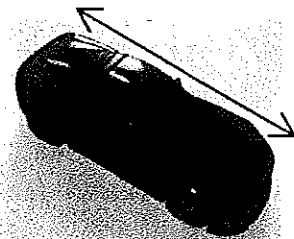$$\frac{.5X}{.5} = \frac{3}{.5}$$

$$\boxed{X = 6 \text{ in}}$$

10) A toy company is redesigning its packaging for model cars. The graphic design team needs to take the old image shown below and resize it so that $\frac{1}{2}$ inch on the old packaging represents $\frac{1}{3}$ inch on the new package. Find the length of the image on the new package.

Car image length on old packaging measures 2 inches.

10)

$$\frac{\frac{1}{3}}{\frac{1}{2}} = \frac{X}{2}$$

$$\frac{1}{2}X = \frac{2}{1} \times \frac{1}{3} = \frac{2}{3}$$

$$\frac{\frac{1}{2}X}{\frac{1}{2}} = \frac{\frac{2}{3}}{\frac{1}{2}}$$

$$X = \frac{2}{3} \times \frac{2}{1} = \frac{4}{3} = \boxed{1\frac{1}{3} \text{ in}}$$

| A |

(11) Josh has 300 DVDs and 75 Blueray
   movies. What is the ~~unit rate~~ of DVDs
   to Blueray movies? simplified ratio

11)

$$\frac{300}{75} = \boxed{\frac{4 \text{ DVDs}}{\text{Blurays}}}$$

| A, B, C |

12) Garrett drove 432 miles on 18 gallons
    of gas. Derick drove 364 miles on 14
    gallons of gas. Who had the better gas
    mileage?

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12) $G =$
$$\boxed{\frac{432}{18} = 24 \text{ m/gal}}$$

$$\boxed{\begin{array}{l} D = \quad \ast \text{ Better gas mileage} \\ \frac{364}{14} = 26 \text{ m/gal} \end{array}}$$

| A, B, C |

13) A peanut vendor sells roasted peanuts in
    three sized bags: 2 pounds for $3, 5
    pounds for $7.50, or 8 pounds for $12.
    Which is the best buy?

(

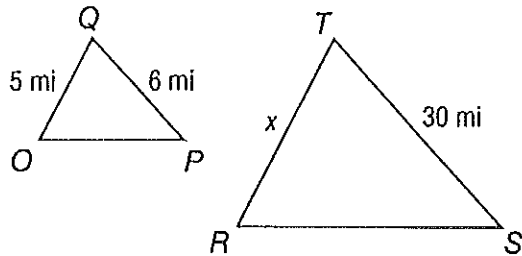$$\frac{\$3}{2 \text{ lbs}} = \frac{\$1.50}{1 \text{ lb}}$$

$$\frac{\$7.50}{5 \text{ lbs}} = \frac{\$1.50}{\text{lb.}} \quad \boxed{\begin{array}{l} \text{They are} \\ \text{all the} \\ \text{same} \end{array}}$$

$$\frac{\$12}{8 \text{ lbs}} = \frac{\$1.50}{\text{lb.}}$$

14) How long is side x?

14)

$$\frac{5}{x} = \frac{6}{30}$$

$$\frac{6x}{6} = \frac{150}{6}$$

$$\boxed{x = 25\,mi}$$

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15) In one day you earn $75 for 8 hours of work. If you work 37.5 hours for the week, what will your weekly pay be?

15)

$$\frac{\$75}{8} = \frac{x}{37.5}$$

$$8x = 2812.50$$

$$\boxed{x = \$351.56}$$

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16) A model car has a scale factor of 1 : 48. If the tires on the model car have a diameter of 1/4 inch, what is the diameter of a tire on the actual car?

16) $\frac{1}{48} = \frac{\frac{1}{4} = .25}{x}$

$$\boxed{x = 12\,in}$$

(17) The graph represents the relationship between x (the number of owls fed) and y (the number of dollars spent). What is the amount of money that will be spent to feed 10 owls?

17)

$$\frac{\$3}{2\ owls} = \frac{\$1.50}{owl}$$

$$10 \times 1.50 = \boxed{\$15}$$

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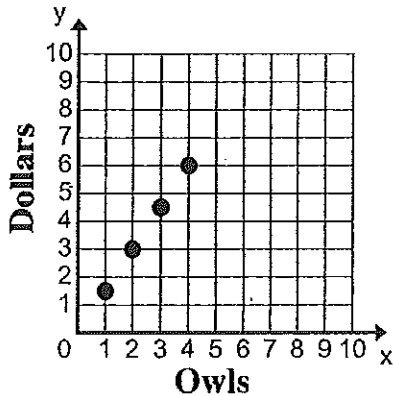
18) Circle the pairs of numbers which are proportions.

$$\frac{4}{2} \text{ and } \frac{20}{6} \qquad \frac{4}{3} \text{ and } \frac{16}{12}$$

$$\frac{4}{3} \text{ and } \frac{8}{6} \qquad \frac{12}{24} \text{ and } \frac{3}{4}$$

(18) Proportions are:

$$\boxed{\frac{4}{3} \text{ and } \frac{16}{12}}$$

$$\boxed{\frac{4}{3} \text{ and } \frac{8}{6}}$$

19) Solve the following proportions:

a)

$$\frac{4}{9} = \frac{2}{x}$$

a) $\frac{4}{9} = \frac{2}{x}$

$\frac{4}{4}x = \frac{18}{4}$

$\boxed{x = 4.5}$

b)

$$\frac{6}{a} = \frac{3}{8}$$

b) $\frac{6}{a} = \frac{3}{8}$

$\frac{3a}{3} = \frac{48}{3}$

$\boxed{a = 16}$

c)

$$\frac{11}{10} = \frac{r}{11}$$

c) $\frac{11}{10} = \frac{r}{11}$

$\frac{10r}{10} = \frac{121}{10}$ $\boxed{r = 12.1}$

A, B, C

20) The key on a map states that 1 inch is equal to 10 miles. Write the scale for the map.

$\frac{1''}{10\,miles}$