Name _____

Acc Take Home and Check – Unit 2 Part 1

updated 2018

1) Coach George went to a store to buy mouth guards. The following packages of mouth guards are available at this store. 10 mouth guards for $14.50 15 mouth guards for $22.50, Coach George needs to buy 60 mouth guards. How much money will he save by purchasing 60 mouth guards in packages with the lowest unit price compared to the highest unit price?

1)

$\frac{\$14.50}{10} = \$1.45$

$\frac{22.50}{15} = \$1.50$

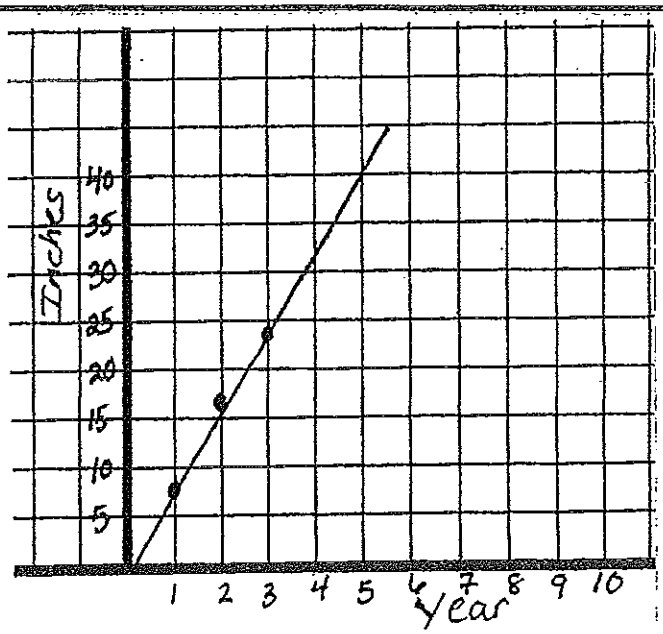
$60 \times \$1.45 = \$87$

$60 \times \$1.50 = \$90$

He will save $3.

2) For the following problem, draw the graph of the proportional relationship between the two quantities and describe how the unit rate is represented on the graph.

An Elm tree grows 8 inches each year.



One year is at 8" → this can be seen because at 40" it is 5 yrs. $40 \div 5 = 8$ which is the unit rate

3) Jonathan can jog $3\frac{2}{5}$ miles in $\frac{7}{8}$ hour. Find how many miles he jogs in an hour.

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

$$\frac{17}{5} \div \frac{7}{8} = \frac{17}{5} \times \frac{8}{7} = \boxed{\frac{136}{35} = 3\frac{31}{35} \frac{mi}{hr.}}$$

4) There are 600 pupils in a school. The ratio of boys to girls in this school is 3:5. How many girls and how many boys are in this school?

b 3
g 5

boys / total: $\frac{3}{8} = \frac{x}{600}$

$\frac{8x}{8} = \frac{1800}{8}$

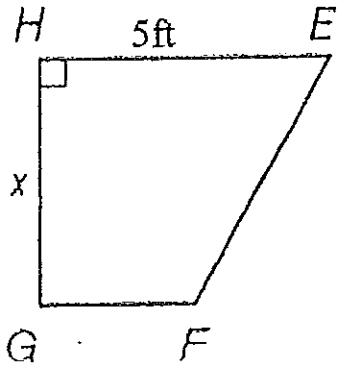
$x = 225$ boys

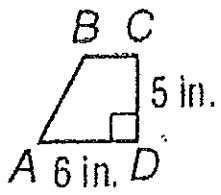
girls / total: $\frac{5}{8} = \frac{x}{600}$

$\frac{8x}{8} = \frac{3000}{8}$

$x = 375$ girls

5) Find the value of x in the diagram below:



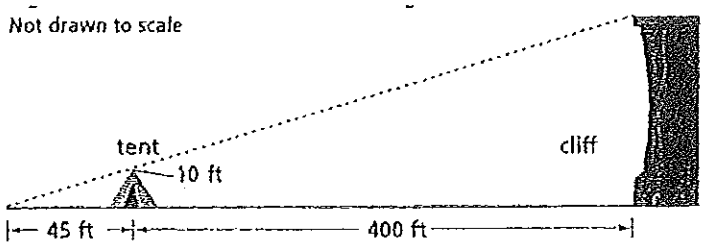


$$\frac{5}{x} = \frac{6}{5}$$

$$\frac{6x}{6} = \frac{25}{6}$$

$$x = 4\frac{1}{6} \text{ ft.}$$

6) Judy lies on the ground 45 feet from her tent. Both the top of the tent and the top of a tall cliff are in her line of sight. Her tent is 10 feet tall. About how high is the cliff?



6)

$\frac{45}{10} = \frac{445}{x}$

$\frac{45}{45}x = \frac{4450}{45}$

$x = 98.89$

≈ 99 ft

7) Lee's paper clip chain is 32 feet long. He is going to add paper clips continually for the next eight hours. At the end of eight hours the chain is 80 feet long. Find the unit rate of growth in feet per hour.

7)

$80 - 32$

48 ft growth

$\frac{48\text{ ft}}{8\text{ hrs}} = \frac{6\text{ ft}}{1\text{ hr.}}$

8) A drawing of a surfboard in a catalog shows its length as $8\frac{4}{9}$ 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.

8)

$$\frac{\text{surf draw}}{\text{act}}\ \frac{\frac{1}{2}}{\frac{3}{8}} = \frac{8\frac{4}{9}}{x}$$

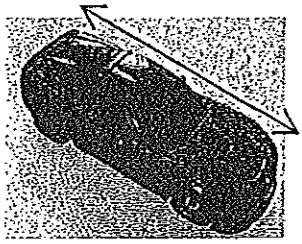
$$\frac{\frac{1}{2}}{\frac{3}{8}} = \frac{\frac{76}{9}}{x}$$

$$\frac{1}{2}x = \frac{3}{8}\cdot\frac{76}{9} = \frac{19}{6} = \boxed{6\frac{1}{3}\text{ ft.}}$$

$$\frac{\frac{19}{6}}{\frac{1}{2}} \rightarrow \frac{19}{6}\times\frac{2}{1} = \frac{19}{3}$$

9) 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.



9)

$$\frac{\text{old}}{\text{new}}\ \frac{\frac{1}{2}}{\frac{1}{3}} = \frac{2}{x}$$

$$\frac{1}{2}x = \frac{2}{1}\cdot\frac{1}{3}$$

$$\frac{1}{2}x = \frac{2}{3}\div\frac{1}{2} = \frac{2}{3}\times\frac{2}{1} = \frac{4}{3}$$

$$x = \frac{4}{3} = \boxed{1\frac{1}{3}\text{"}}$$

10) Josh has 300 DVDs and 75 Blueray movies. What is the simplified ratio of DVDs to Blueray movies?

10)

$$\frac{300}{75} = \frac{12}{3} = \frac{4 \text{ DVD's}}{1 \text{ Blueray}}$$

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

11) G

$$\frac{432}{18} = 24 \text{ m/gal}$$

D

$$\frac{364}{14} = 26 \text{ m/gal}$$

Derick gets better gas mileage.

12) 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?

12)

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

$$\frac{\$7.50}{5} = \$1.50$$

$$\frac{\$12}{8} = \$1.50$$

They are all the same!

13) Which of the following is NOT a true proportion?

a. $3 : 7 = 6 : 14$

b. $5 : 8 = 15 : 24$

c. $2 : 9 = 12 : 54$

d. $3 : 5 = 6 : 15$

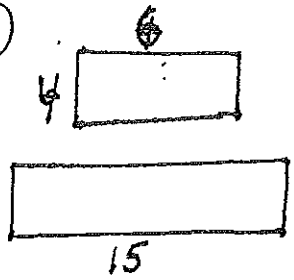
(13)

d

$\frac{3}{5} \neq \frac{6}{15}$ (45, 30)

14) A rectangle is 4 feet long and 6 feet wide. A similar rectangle is 15 feet wide. How long is the similar rectangle?

(14)



$\frac{6}{15} = \frac{4}{x}$ $\quad \frac{6}{6}x = \frac{60}{6}$

$x = 10$ ft

15) 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?

$\frac{\text{Mod}}{\text{act}} \frac{1}{48} = \frac{\frac{1}{4}}{x}$

$x = \frac{1}{4} \cdot \frac{48}{1}^{12}$

$x = 12''$