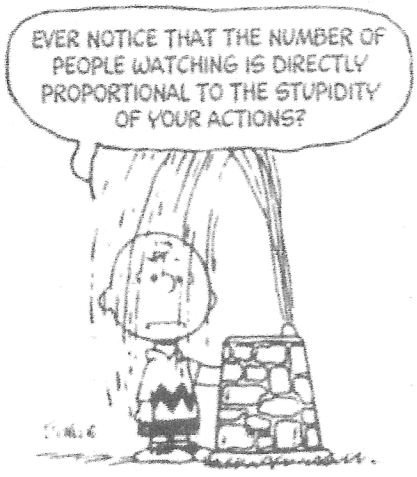
Answer Key



Name _____

Date _____

Period _____

TAKE HOME AND CHECK
UNIT 8 Regular
RATES, RATIO, PROPORTIONS

Simplify.

1) $\frac{22\ sec}{2\ sec}$

$\frac{22}{2} = \frac{11\ sec}{1\ sec}$

2) $\frac{\$372}{2\ weeks}$

$\frac{\$372}{2w} = \$186\ per\ week$

3) 82 miles per 4 hours

$\frac{82m}{4h} = 20.5\ mph$

4) 30 ft : 5 ft

6ft : 1ft

Solve the problems.

5) It took the Richardsons 4 hours to travel 300 km. If they maintain a constant speed, how far can they travel in 10 hours?

$\frac{300K}{4\ hr.} = \frac{X}{10\ hr.}$

$4X = 3000$

$X = 750K$

6) The ratio of girls to boys at Southwest High School is 6 : 5. If there are 975 Boys, how many girls are there?

$\frac{g}{b} = \frac{6}{5} = \frac{x}{975}$

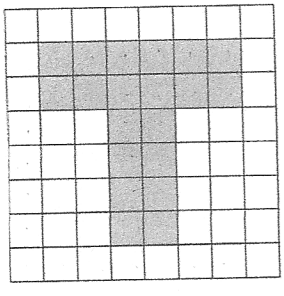
$5x = 975 \cdot 6$

$5x = 5{,}850$

$x = 1{,}170$ girls

Find the ratio of the area of the shaded Region to the total area.

7)



8 x 8 square = 64 units squared

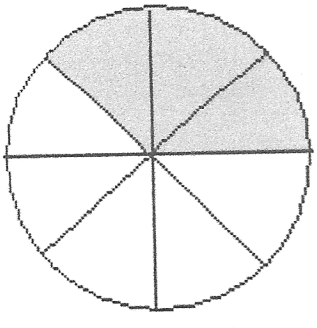
20 shaded squares

$\frac{20 \text{ shaded}}{64 \text{ total area}} = \frac{5 \text{ shaded}}{16 \text{ total area}}$

.3125 or

31.25% of total area shaded.

8)



$\frac{3 \text{ shaded}}{8 \text{ total area}} = .375$ or

37.5% of area shaded

Solve the proportion.

9) $\frac{r}{6.5} = \frac{0.2}{1.3}$

$\frac{r}{6.5} = \frac{0.2}{1.3}$

$1.3r = 6.5 \times 0.2$

$1.3r = 1.3$

$\boxed{r = 1}$

10) $\frac{30}{14} = \frac{k}{1.54}$

$\frac{30}{14} = \frac{k}{1.54}$ $\quad 14k = 30 \times 1.54$

$14k = 46.2$

$\boxed{k = 3.3}$

11) Gayle is making fruit punch that consists of 2 quarts of juice and 1 quart of soda water. How much soda water does she need if she has 5 quarts of juice? Show the work!

$\frac{2 \text{ q. juice}}{1 \text{ q. soda water}} = \frac{5 \text{ q. juice}}{x}$

$\frac{2x}{2} = \frac{5}{2}$

$\boxed{x = 2\frac{1}{2} \text{ q. soda water}}$

Complete the statement.

12) If $\frac{t}{18} = \frac{1}{3}$, *then* $\frac{18}{t} =$ _____

$\frac{t}{18} = \frac{1}{3}$ then $\boxed{\frac{18}{t} = \frac{3}{1}}$

$3t = 18$ $\quad 3t = 18$

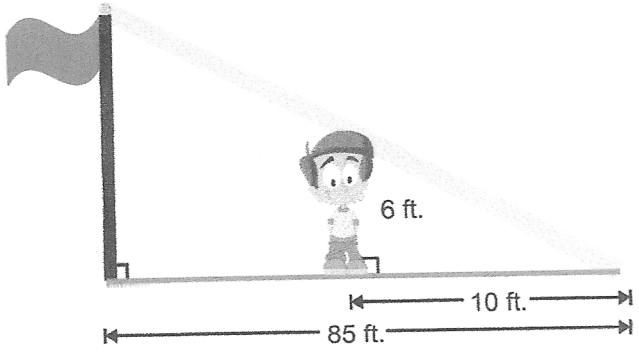
$t = 6$ $\quad t = 6$

13) If $\frac{p}{q} = \frac{9}{10}$, *then* _____ $= \frac{10}{9}$

$\frac{p}{q} = \frac{9}{10}$ then $\boxed{\frac{q}{p} = \frac{10}{9}}$

$10p = 9q$ ✓ $\quad 9q = 10p$ ✓

14) How tall is the flagpole? Show the work.



$\frac{\text{boy}}{\text{shadow}} = \frac{6\text{ft.}}{10\text{ft.}}$

$\frac{\text{flagpole}}{\text{shadow}} = \frac{x}{85\text{ft.}}$

$\frac{6}{10} = \frac{x}{85}$ $\quad 10x = 510$

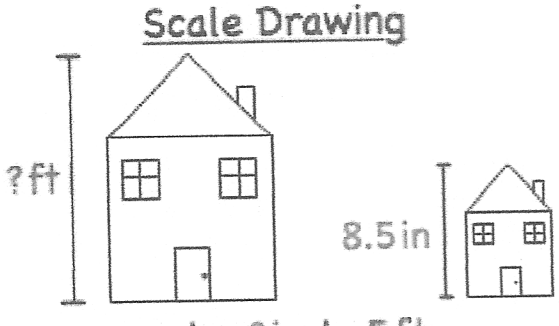
$x = 51$ ft.
flagpole height

15) The height of a building in an architectural drawing is 10 inches. Its actual height is 150 ft. What is the The scale of the drawing?

$\frac{10\text{ inches}}{150\text{ ft.}} = \frac{1\text{ inch}}{15\text{ ft.}}$

1 inch on the drawing equals 15 feet on the building.

16) Given the scale, find the height of the larger house.



$\frac{2\text{ in}}{5\text{ ft}} = \frac{8.5\text{ in}}{}$

$\frac{\text{scale}}{\text{actual}} = \frac{2\text{ in}}{5\text{ ft.}} = \frac{8.5\text{ in}}{x}$

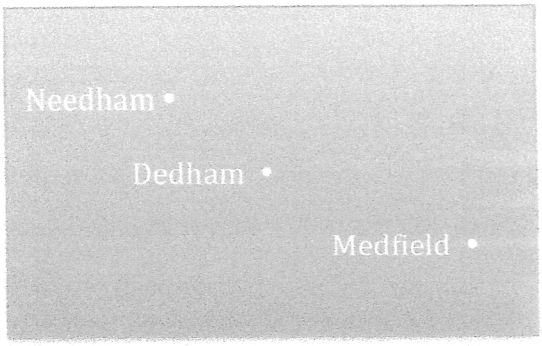
$2x = 8.5 \times 5$

$\frac{2x}{2} = \frac{42.5}{2}$

$x = 21.25$ ft.
height of larger house

17) The map below shows some towns in Massachusetts.

Area Map



The actual distance between Needham and Medfield is 9 miles. Which scale is most appropriate for this map?

A) 1 cm = 10 miles B) 1 cm = 8 miles

C) 1 cm = 2 miles D) 1 cm = 5 miles

Needham to Medfield = 4.5cm on map.

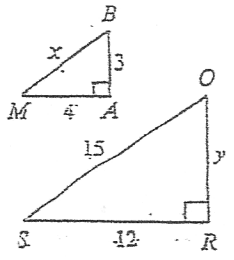
4.5 cm : 9 miles

1 cm : 2 miles

C) $\frac{1\text{ cm}}{2\text{ miles}} = \frac{4.5\text{cm}}{9\text{miles}}$

Find the lengths marked x and y. Show your work.

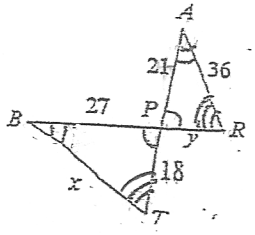
18) $\triangle MAB \sim \triangle SRO$

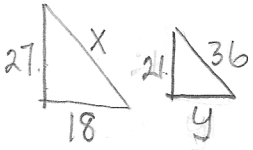


$\frac{\text{small }\triangle}{\text{big }\triangle} = \frac{3}{y} = \frac{4}{12}$ $4y = 36$ $y = 9$

$\frac{\text{small }\triangle}{\text{big }\triangle} = \frac{x}{15} = \frac{4}{12}$ $12x = 60$ $x = 5$

19) $\triangle PAR \sim \triangle PBT$





$\frac{21}{27} = \frac{7}{9}$

$\frac{7}{9} = \frac{y}{18}$ $9y = 126$ $y = 14$

$\frac{7}{9} = \frac{36}{x}$ $7x = 324$ $x = 46\frac{2}{7}$