Name_____ Period _____ Date_____

Algebra 1 Chapter 4 Test (A) Review

Find each unit rate. Label answers!!

1. 248 miles in 4 hours.

$248 \div 4 = 62$ mi/h

2. $5.25 for 5 pounds

$1.05 per lb.

Complete the statement, show all conversion factors in your expression.

3. 600 sec = _____ hrs

$600 \times \frac{1\text{min}}{60\text{sec}} \times \frac{1\text{hr}}{60\text{min}} = .1\overline{6}\text{hrs}$

60 sec = 1 min

60 min = 1 hr.

4. If you are driving 65 mi/h, how many feet per second are you driving? 65mi/h = 95.$\overline{3}$ ft/sec

$65\text{mi} \times \frac{5280\text{ft.}}{1\text{mi.}} = 343{,}200\text{ ft}$ $\frac{343{,}200}{3{,}600}$

$1\text{ hr.} \times \frac{60\text{min}}{1\text{hr}} \times \frac{60\text{sec}}{1\text{min}} = 3600\text{ secs}$

Solve each proportion. Show work.

5. $\frac{t}{4} = \frac{15}{10}$

$10t = 60$

$t = 6$

6. $-\frac{6}{8} = \frac{p}{12}$

$\frac{-72}{8} = \frac{8p}{8}$

$p = -9$

7. $\frac{x+3}{6} = \frac{4}{10}$

$10(x+3) = 4 \cdot 6$

$10x + 30 = 24$

$-30 \quad -30$

$10x = -6$

$x = -\frac{3}{5}$

8. $\frac{x+5}{4} = \frac{x+8}{10}$

$10(x+5) = 4(x+8)$

$10x + 50 = 4x + 32$

$-10x \quad -32 \qquad -10x \quad -32$

$18 = -6x$

$x = -3$

Write a proportion, then solve.

9. What is $33\frac{1}{3}\%$ of 360?

$.3 \cdot 360 =$

120

10. What percent of 80 is 24?

$\frac{24}{80} = .3$

30%

11. 16 is what percent of 20?

$\frac{16}{20} = .8$

80%

12. 80 is 20% of what number?

$\frac{80}{x} = \frac{20}{100}$

400

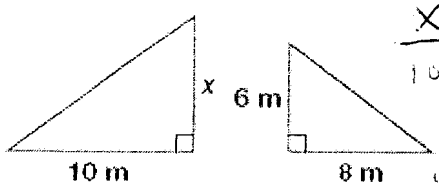
13. Suppose you invested $1200 (principal) for five years (time). You earned $600 in simple interest at the end of five years. What is the annual interest rate? Use $I = Prt$, where I = simple interest, P = principle, r = annual interest rate and t = time in years. **Show work!!**

$600 = 1200 \cdot r \cdot 5$

$\frac{600}{6000} = \frac{6000r}{6000}$ $r = .1 = 10\%$

Write a proportion, then solve.

14. The pair of figures is similar. Find the length of x.



$\frac{x}{10} = \frac{6}{8}$

$x = 7.5$

or $\frac{8}{10} = \frac{6}{x}$

15. The scale of a map is 1 cm:50 mi. Determine the distance between two cities that are 4.2 cm apart on the map.

$\frac{\text{map}}{\text{real life}} \quad \frac{1}{50} = \frac{4.2}{x}$

210 miles

Write a proportion, then solve.

16. If a person can walk 4 miles in 14 minutes, how long will it take them to travel 22 miles if they continue at this same rate?

$\frac{4}{14} = \frac{22}{x}$

77 min.

17. A 5-ft person casts a shadow of 24 inches long. A nearby tree casts a shadow of 64 feet. How tall is the tree?

$64 \times 12 = 768$ inches

ft. Person/Tree / in. Shadow: $\frac{5}{24} = \frac{x}{768}$

160 ft.

For problems 18-21, find each probability. A bank contains five dimes, seven nickels, and three quarters. Two coins are selected at random. **Show individual probabilities!**

18. *P*(quarter and quarter) with replacing

$\frac{3}{15} \cdot \frac{3}{15} = \frac{9}{225}$ or $\frac{1}{25}$

19. *P*(dime then nickel) without replacing

$\frac{5}{15} \cdot \frac{7}{14} = \frac{35}{210}$ or $\frac{1}{6}$

20. *P*(dime and quarter) with replacing

$\frac{5}{15} \cdot \frac{3}{15} = \frac{15}{225}$ or $\frac{1}{15}$

21. *P*(quarter then quarter) without replacing

$\frac{3}{15} \cdot \frac{2}{14} = \frac{6}{210}$ or $\frac{1}{35}$

22. a) Quality control inspected 500 belts at random. They found no defects in 485 belts. What is the probability that a belt was selected at random will pass quality control?

$\frac{485}{500}$ or $\frac{97}{100}$

b) Using the above probability. If the belt manufacturer had 6258, predict how many belts are likely to have no defects?

$.97 \cdot 6258 \approx 607.$

Bonus: **Complete the statement, show all conversion factors in your expression.**

12 gallons/week = _____ quarts/hour