Name: **Key**   Period: _____   Date: _____   Score:

Algebra 1
Practice Test, Chapter 3

Write and solve a percent equation or proportion to solve the problem.

1. What percent of 124 is 93?

$$124p = 93$$
$$P = \frac{93}{124} = 0.75$$
$$\boxed{P = 75\%}$$

2. 79.8 is what percent of 95?

$$79.8 = 95p$$
$$P = \frac{79.8}{95} = 0.84$$
$$\boxed{P = 84\%}$$

Write the equation so that y is a function of x.

3. $4x = -2y + 26$

$$\boxed{y = -2x + 13}$$

4. $3(y+1) = 6x + 9$

$$3y + 3 = 6x + 9$$
$$3y = 6x + 6$$
$$\boxed{y = 2x + 2}$$

Solve the proportion. *Cross products aka cross multiply to solve!*

5. $\dfrac{n}{9} = \dfrac{63}{81}$

$$81n = 567$$
$$\boxed{n = 7}$$

6. $\dfrac{-4a-1}{-10a} = \dfrac{3}{8}$

$$8(-4a-1) = 3(-10a)$$
$$-32a - 8 = -30a$$
$$-8 = 2a$$
$$\boxed{a = -4}$$

7. $\dfrac{2h+3}{6h-4} = \dfrac{18}{28}$

$$28(2h+3) = 18(6h-4)$$
$$56h + 84 = 108h - 72$$
$$156 = 52h$$
$$\boxed{h = 3}$$

8. $\dfrac{4.5}{g+2} = \dfrac{3}{0.5g-1}$

$$4.5(0.5g-1) = 3(g+2)$$
$$2.25g - 4.5 = 3g + 6$$
$$-10.5 = 0.75g$$
$$\boxed{g = -14}$$

9. A quality control inspector finds 4 scratch defects in a sample of 25 computer desks. At this rate, what is the expected number of scratch defects in a shipment of 525 computer desks?

$$\frac{4}{25} = \frac{x}{525}$$

$$\boxed{84 \text{ scratch defects}}$$

10. At the homecoming dance last weekend, the ratio of seniors to freshmen was 3:5. If there were 65 freshmen at the dance, estimate the number of seniors in attendance.

$$\frac{3}{5} = \frac{x}{65}$$

$$5x = 195$$

$$\boxed{39 \text{ seniors}}$$

The surface area of a cylinder is given by $S = 2\pi r^2 + 2\pi rh$**, where** r **is the radius of the base, and** h **is the height of the cylinder.**

$$S = 2\pi r^2 + 2\pi rh$$

11. Solve the formula for h.

$$\frac{S - 2\pi r^2}{2\pi r} = \frac{2\pi rh}{2\pi r}$$

$$\boxed{h = \frac{S - 2\pi r^2}{2\pi r} \quad \text{or} \quad h = \frac{S}{2\pi r} - r}$$

12. What is the height of a cylinder when the surface area is 75.36 square inches and the radius is 2 inches? Round to the nearest hundredth.

$$h = \frac{75.36}{2\pi (2)} - 2$$

$$5.997 - 2 = 3.997 \approx \boxed{\text{height } 4.00 \text{ inches}}$$

13. Your family is driving from Harrisburg, Pennsylvania to San Antonio, Texas, a trip of 1430 miles. You begin the trip with a full tank of gas and after traveling 350 miles, you refill the tank for $35. How much should you plan to spend on gasoline for the entire trip?

$$\boxed{\$143}$$

$$\frac{\$35}{350 \text{ miles}} = \frac{\$x}{1430 \text{ miles}}$$

14. Based on #13, If your average gas mileage was 33 miles per gallon, approximately how many gallons of gas did you buy over the course of your cross-country trip? (use a proportion)

$$\frac{33 \text{ miles}}{1 \text{ gallon}} = \frac{1430 \text{ miles}}{x \text{ gallons}}$$

$$\boxed{\begin{array}{l} 43.\overline{3} \text{ gallons} \\ \text{Approximately} \\ 43\text{-}44 \text{ gallons} \end{array}}$$

15. Solve the equation $C = 4(9 - A) + 6A$ for A, where A represents the number of adult tickets sold, and C is the total cost.

$$C = 36 - 4A + 6A$$
$$C = 36 + 2A$$
$$C - 36 = 2A$$

$$\boxed{A = \frac{C - 36}{2} \quad \text{or} \quad A = \frac{C}{2} - 18}$$

15 b. If Joe's total cost was $48, how many adult tickets did Joe buy?

$$A = \frac{48 - 36}{2} = \frac{12}{2} = \boxed{6 \text{ adult tickets}}$$