Name:_____**Date:**_____**Per:**_____

Chapter 3 Practice Test (Answer Key)

Show all of your work for each problem. If you do not show your work you will <u>not</u> receive credit.

Solve each equation.

1. $\dfrac{108r}{108} = \dfrac{9}{108}$

$\quad r = \dfrac{1}{12}$

2. $4x + 8 = 21$

$\quad \underline{-8 \quad -8}$

$\quad \dfrac{4x}{4} = \dfrac{13}{4}$

$\quad x = \dfrac{13}{4} \text{ or } x = 3\dfrac{1}{4}$

3. $12(c + 3) - 30 = 12c + 36$

$\quad 12c + 36 - 30 = 12c + 36$

$\quad 12c + 6 = 12c + 36$

$\quad \underline{-12c \qquad -12c}$

$\quad\quad 6 = 36$

$\quad\quad$ No Solution

4. $3(y + 4) - y = 12 - y$

$\quad 3y + 12 - y = 12 - y$

$\quad 2y + 12 = 12 - y$

$\quad \underline{+y \qquad\qquad +y}$

$\quad 3y + 12 = 12$

$\quad \underline{-12 \ -12}$

$\quad \dfrac{3y}{3} = \dfrac{0}{3}$

$\quad y = 0$

5. $\dfrac{2}{3} - s = \dfrac{5}{6}$

$\quad \underline{-\dfrac{2}{3} \qquad -\dfrac{2}{3}}$

$\quad -s = \dfrac{1}{6}$

$\quad s = -\dfrac{1}{6}$

6. $6x +- 4(x +-3) = 24 - 2x$

$\quad 6x + -4x + 12 = 24 - 2x$

$\quad 2x + 12 = 24 - 2x$

$\quad \underline{+2x \qquad\qquad +2x}$

$\quad 4x + 12 = 24$

$\quad \underline{-12 \ -12}$

$\quad \dfrac{4x}{4} = \dfrac{12}{4}$

$\quad x = 3$

7. $4(6a + 3) = 6(4a + 2)$

$$24a + 12 = 24a + 12$$
$$\underline{-24a \qquad -24a}$$
$$12 = 12$$
All real Numbers

Solve each proportion.

8. $\dfrac{6}{x+4} = \dfrac{12}{5x-13}$

$6(5x - 13) = 12(x + 4)$
$30x - 78 = 12x + 48$
$\underline{-12x \qquad -12x}$
$18x - 78 = 48$
$\underline{\quad +78 \quad +78}$
$\underline{18x} = \underline{126}$
$\;18 \qquad 18$
$\qquad x = 7$

9. $\dfrac{7v}{4v+6.5} = \dfrac{2}{3}$

$3(7v) = 2(4v + 6.5)$
$21v = 8v + 13$
$\underline{-8v \; -8v}$
$\underline{13v} = \underline{13}$
$\;13 \qquad 13$
$\quad v = 1$

10. $\dfrac{5}{3a+8} = \dfrac{-2}{a-1}$

$5(a - 1) = -2(3a + 8)$
$5a - 5 = -6a + -16$
$\underline{+6a \qquad +6a}$
$11a - 5 = -16$
$\underline{\qquad +5 \quad +5}$
$\underline{11a} = \underline{-11}$
$\;11 \qquad 11$
$\quad a = -1$

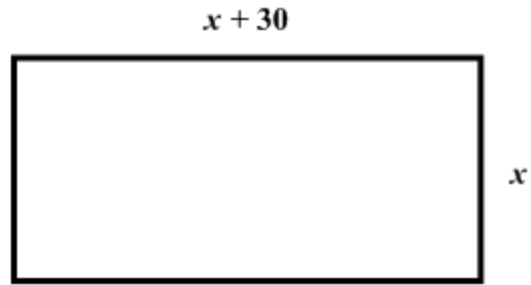**11.** What percent of 80 is 94.4?

$$\dfrac{94.4}{80} = \dfrac{x}{100} \qquad x = 118\%$$

Solve each problem. Show all of your work.

12. The rectangle below has a perimeter of 860 feet.

A) Write a simplified equation to represent the situation.

$4x + 60 = 860$

B) Solve for x.

$$4x + 60 = 860$$
$$\underline{-60 \quad -60}$$
$$\frac{4x}{4} = \frac{800}{4}$$
$$x = 200$$

$x + 30$

x

13. A simple syrup used for ice cream toppings requires 2 cups of sugar and $\frac{2}{3}$ cups of boiling water. How much cups of sugar are required for 2 cups of boiling water?

$$\frac{2}{2/3} = \frac{x}{2}$$

$$4 = \frac{2}{3}x \qquad \text{*Now multiply both sides by the reciprocal}$$
$$\text{To isolate } x$$

$$\frac{4}{1} \cdot \frac{3}{2} = 6$$

14. Verizon Fios charges an installation fee of \$100 plus an additional \$104.99 for cable and internet. Comcast does not charge an installation fee, but their monthly fee is \$129.99.

a) When will the two companies have the same cost?

$$\text{Verizon: } 100 + 104.99x \qquad \text{Comcast: } 129.99x \qquad x = \# \text{ months}$$
$$100 + 104.99x = 129.99x$$
$$\underline{-104.99x \quad -104.99x}$$
$$\frac{100}{25} = \frac{25x}{25}$$
$$4 = x \qquad \text{They will be the same at 4 months}$$

b) How many months of service would make you decide to choose Verzion?
Since they are the same at 4 months, then it would make sense to choose Verizon at 5 months.

For numbers 15 and 16, write the following equations in function form.

15. $3x - y + 2 = 10$

$\quad \underline{-3x \qquad\qquad -3x}$

$\qquad\quad -y + 2 = 10 - 3x$

$\qquad\qquad \underline{-2 \quad -2}$

$\qquad\qquad \underline{-y = 8 + -3x}$

$\qquad\qquad -1 \qquad -1$

$\qquad\qquad\quad y = -8 + 3x$

16. $8x + 4y = -20$

$\quad \underline{-8x \qquad\qquad -8x}$

$\qquad\qquad \underline{4y = -20 + -8x}$

$\qquad\qquad 4 \qquad\quad 4$

$\qquad\qquad\quad y = -5 + -2x$