Apprenticeship Math 12
ASSIGNMENT: Ratios, Rates and Proportions

Name: _____

Date: _____

1. State if the ratio is part to part or part to whole.

    a)   17 people in a class of 25 have brown hair _____

    b)   3 quarters to 5 nickels _____

    c)   A hockey team wins 56 out of 80 games _____

    d)   The number of vowels to the number of consonants _____

2. Write each ratio in lowest terms.

    a)   4:12   _____

    b)   10:1000   _____

    c)   12:36:54   _____

    d) $\dfrac{15}{45}$ _____

    e) $\dfrac{600}{1500}$ _____

    f)   18:24:72   _____

3. Find the unknown value in each proportion

    a) $\dfrac{s}{5} = \dfrac{4}{20}$ $s =$ _____

    b) $\dfrac{r}{15} = \dfrac{3}{5}$ $r =$ _____

    c) $\dfrac{15}{d} = \dfrac{3}{2}$ $d =$ _____

    d) $\dfrac{9}{12} = \dfrac{3}{p}$ $p =$ _____

e) $\dfrac{24}{3} = \dfrac{r}{9}$ $r =$ _____

f) $\dfrac{4}{6} = \dfrac{10}{y}$ $y =$ _____

g) $\dfrac{3}{n} = \dfrac{6}{14} = \dfrac{p}{28}$ $n =$ _____ $p =$ _____

h) $\dfrac{9}{15} = \dfrac{m}{5} = \dfrac{18}{y}$ $m =$ _____ $y =$ _____

4. Find the unknown value in each proportion

a) $y : 5 = 15 : 25$ $y =$ _____

b) $3 : x = 18 : 12$ $x =$ _____

c) $12 : 15 = 4 : c$ $c =$ _____

d) $b : 6 : 8 = 36 : a : 24$ $b =$ _____ $a =$ _____

e) $x : 3 : 5 = 2 : y : 10$ $x =$ _____ $y =$ _____

5. Write a proportion and solve each problem. Be sure to include units with your answer.

a)   The ratio of the length of a rectangle to its width is 7:4. If the length is 42 centimeters, what is the width of the rectangle?

_____

b)   Eight bus tickets cost $32. What is the cost of 6 tickets?

_____

c)   In Canadian federal elections, 3 out of 4 voters cast their votes. In a riding with 60,000 voters how many people are expected to vote?

_____

d)   The ratio of the length of the human body to the circumference of the head is about 8 to 1. What is the circumference of the head of a person who is 168 cm tall?

_____

e)   An aircraft flies 4900 km in 7 hours. How far will it fly in 5 hours?

_____

f)   Bag A contains 4 red disks and 6 blue disks. Bag B contains a total of 30 red disks and blue disks. The ratio of red to blue disks in each bag is the same. How many red disks and blue disks are in bag B?

_____

g)   A salesperson traveled 630 km in 9 hours. At this rate, how far would he travel in 4 hours?

_____

h) In 500 games Michael Jordan scored 20 000 points. In 1500 games Kareem Abdul-Jabbar scored 45 000 points. Who scored points at the greater rate per game?

_____

i) Athena earned $108 for 12 hours of cutting lawns. Brad earned $150 for 15 hours of packing groceries. Who had the higher hourly rate of pay and by how much?

_____