Hw 7.1 Properties of Proportions

Directions: Write the ratio

1. 28 elementary schools to 16 middle schools

$\frac{28}{16}$

2. 30 treadmills to 36 elliptical machines

$\frac{30}{36}$

3. 18 buses to 66 cars

$\frac{18}{66}$

4. 180 red marbles to 145 blue marbles

$\frac{180}{145}$

5. The hockey team played 82 regular-season games last year. If they won 44 games, what is the ratio of wins to losses?

Losses $= 82 - 44$
$= 38$

$\frac{44}{38}$

6. In the word FLASHLIGHT what is the ratio of vowels to total letters?

$\frac{2}{10}$

Directions: Use the given ratios to solve each problem.

7. The ratio of the measures of two complementary angles is 7:8. What is the measure of the smaller angle?

$7x + 8x = 90$
$15x = 90$
$x = 6$

Smaller
$7(6) = 42$

8. The ratio of the measures of the three angles in a triangle is 2:9:4. Find the measures of the angles.

$2x + 9x + 4x = 180$
$15x = 180$
$x = 12$

Angles
$2(12) = 24$
$4(12) = 48$
$9(12) = 108$

9. The ratio of the measures of the three angles in a triangle is 10:3:7. Find the measure of the largest angle.

$10x + 3x + 7x = 180$
$20x = 180$
$x = 9$

Largest
$10(9) = 90$

10. The ratio of the measure of the vertex angle to the base angle of an isosceles triangle is 8:5. Find the measure of the vertex angle.

$8x + 5x + 5x = 180$
$18x = 180$
$x = 10$

Vertex angle
$8(10) = 80$

11. The ratio of the measures of the sides of a triangle is 21:8:14. If the perimeter of the triangle is 215 feet, find the length of each side.

$21x + 8x + 14x = 215$
$43x = 215$
$x = 5$

Sides
$8(5) = 40$ ft
$14(5) = 70$ ft
$21(5) = 105$ ft

12. The ratio of the measures of the sides of a triangle is 4:7:5. If the perimeter of the triangle is 128 yards, find the length of the longest side.

$4x + 7x + 5x = 128$
$16x = 128$
$x = 8$

Longest
$7(8) = 56$ yd

17. $\frac{17}{15} = \frac{10}{2x-2}$ $15(2x-2)$

$17(2x-2) = 10 \cdot 15$

$34x - 34 = 150$

$34x = 184$

$x = \frac{184}{34}$

$x = \frac{92}{17}$

18. $\frac{x-16}{x+6} = \frac{3}{5}$ $5(x+6)$

$5(x-16) = 3(x+6)$

$5x - 80 = 3x + 18$

$2x - 80 = 18$

$2x = 98$

$x = 49$

19. $\frac{6}{19} = \frac{x-12}{2x-2}$ $19(2x-2)$

$6(12x-2) = 19(x-12)$

$12x - 12 = 19x - 228$

$-12 = 7x - 228$

$216 = 7x$

$\frac{216}{7} = x$

20. $\frac{x-9}{15} = \frac{2x-9}{10}$ $10 \cdot 15$

$10(x-9) = 15(2x-9)$

$10x - 90 = 30x - 135$

$-90 = 20x - 135$

$45 = 20x$

$\frac{45}{20} = x$

$\frac{9}{4} = x$