

**#17-21, Solve each problem, if possible. A diagram will help. (3 pt)**

17. Five foot Naomi casts an 84-inch shadow. How tall is her friend if her shadow at the same time is one foot shorter than Naomi's
18. A rope from the tip of a volleyball pole reaches all the way down to the end of the pole's shadow a distance of 10 meters. The length of the shadow is 6 meters. How tall is a nearby football goal post if its shadow is 4 meters?
19. Brooke, who is 1.82 meters tall, wishes to find the height of the tree in her backyard. She walks 12.2 meters from the tree along the shadow of the tree until she's in a position where the tip of her shadow exactly overlaps the tip of the tree's shadow. She is now 6.1 meters from the end of the shadows. How tall is the tree?
20. A triangle with sides of 12, 15, and 13 cm. is similar to a triangle with a longest side of 39 cm. What is the perimeter of the larger triangle?

21. Altar and Zenor are visiting ambassadors from Titan, one of Saturn's moons. On Titan the atmosphere is so light that the Titans have evolved multiple antennae to pick up sound waves. Altar has revealed to the Biological Research Division that **the sum of the lengths of the antennae on a Titan is proportional to the Titan's age**. Altar has antennae with lengths of 8,10,13, 16, 14 and 12 cm. Zenor has an age of 130 and her seven antennae have an average length of 17 cm. What is the age of Ambassador Altar?



22. The ratio of boys to girls in one of my Geometry class is 2:3. There are 30 students in the class. How many boys and girls are in the class? (2 pt)
23. The perimeter of a rectangle is 50 feet. Find the dimensions of the rectangle if they are in a ratio of 1:4. (2 pt)
24. During the 1986 season, when Mrs. Brown (high school junior Pam Revell at the time) went to see the NY Mets play they had 108 wins. Their regular season consisted of 162 games. What was their win-loss ratio? (2 pt)
25. Using a partner, measuring instrument, mirror and similar triangles, determine the height of the power pole on N 11<sup>th</sup> (outside class and to the right). **Show a labeled diagram with your work.** Accuracy in measurements is critical. (4 pt)