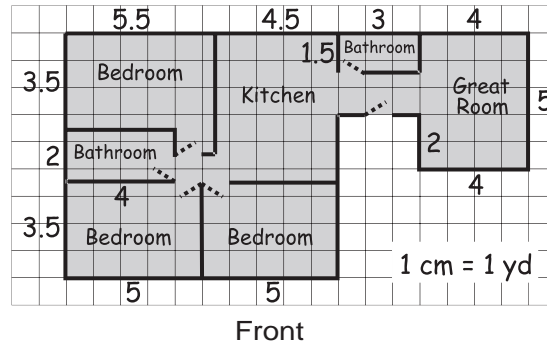# Proportional Reasoning Stretch

Questions #1-5 refer to the house floor plan shown below. In the figure, each pair of consecutive sides forms a right angle. The plan is drawn on graph paper with all dimensions given in centimeters.


Front

1. _____ feet What is the length, in feet, of the house (across the back)?

2. _____ feet What is the greatest width, in feet, of the house (front to back)?

3. _____ sq feet How many square feet of floor space are represented in the floor plan of the house?

4. _____ sq feet How many square feet of carpet will be needed to carpet the Great Room?

5. _____ tiles The two bathroom floors are to be tiled using 6-inch by 6-inch square tiles. How many tiles will be needed if allowance is not made for bathroom fixtures?

6. _____ units In the figure to the right, segment AB is parallel to segment YZ.   If AZ = 42 units, BQ = 12 units and QY = 24 units, what is the length of segment QZ?
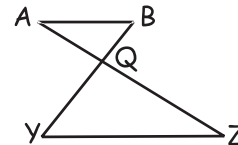
7. _____ units In the figure, triangle AJK is a right triangle with angle A a right angle and segment JK parallel to segment CB. If AK = 21 units, JK = 29 units and AC = 50 units, what is the length of segment CB? Express your answer as a decimal to the nearest tenth.
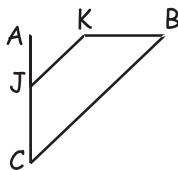
8. _____ If 3x = 8y when 5y = 15z, what is the simplified value of $\frac{x}{z}$?

9. _____ When a square is enlarged such that its new perimeter is three times its original perimeter, what is the ratio of the square's original area to its new area? Express your answer as a common fraction.

10. _____ free throws Owen made exactly 72% of his free throws during the first half of the basketball season, and he made six free throws during the second half of the season. For the entire season he made exactly 60% of his free throws. What is the fewest possible number of free throws Owen could have attempted during the second half of the season?