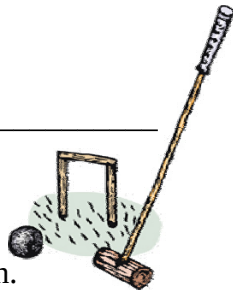
Pythagorean Theorem

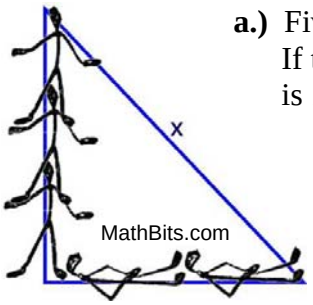
Name_____



("Merry Andrew")

Directions: Round answers to the *nearest tenth* if rounding is needed.

1.

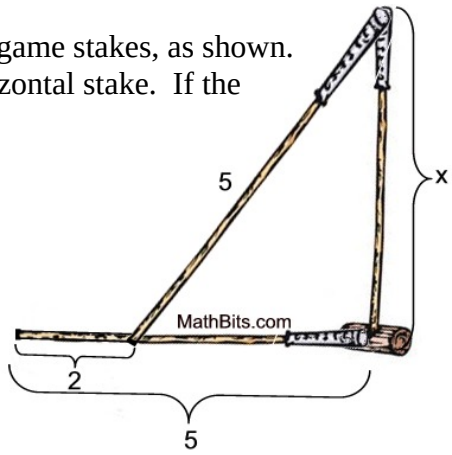


a.) Five people arrange themselves to form a right triangle, as shown. If their total vertical height is 12 feet and their total horizontal length is 10 feet, what is the distance along the hypotenuse of their human triangle?

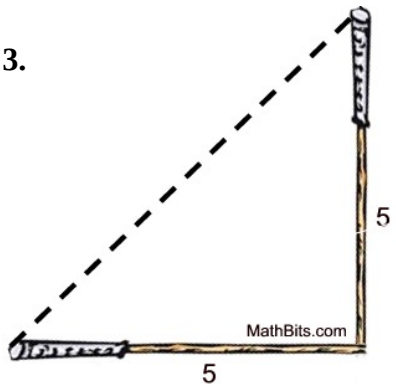
b.) One additional person is added to the stack of people standing. Assume all of the people are of equal height and are standing upon one another in the same manner. What will be the new distance along the hypotenuse of their human triangle?

c.) One additional person is added to the number of people lying on the ground in the original triangle. Assume all of the people are of equal height and are positioned in the same manner. What will be the new distance along the hypotenuse of their human triangle?

2. A croquette mallet is positioned vertically, along with two of the game stakes, as shown. A right angle is formed where the croquette mallet meets the horizontal stake. If the measurements are given in feet, how long is the croquette mallet?

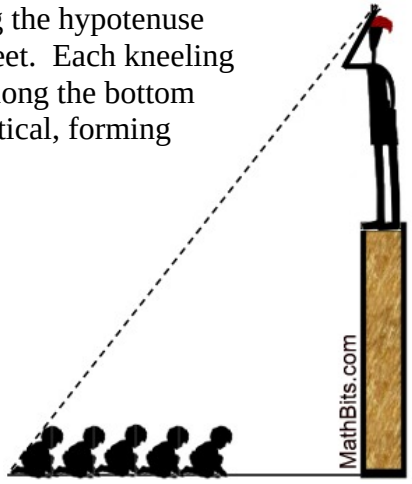


3.



If the 5 foot croquette stakes are positioned, as shown, to form a right angle, what is the length of the hypotenuse joining the ends of the stakes?

4. **a.)** A 6 foot man is standing atop a 9 foot wall. The distance along the hypotenuse from the top of the man's head to the ground, as shown, is 17 feet. Each kneeling child takes up 1 foot of space. How many children can kneel along the bottom of the triangle as shown? Assume the wall and the man are vertical, forming a right angle with the ground.



b.) The height of the wall is decreased by 3 feet, and the number of kneeling children remains the same. What will be the new distance along the hypotenuse from the top of the man's head to the ground?

c.) If the number of kneeling children remains the same, and the height of the wall is half its original height, find the new distance along the hypotenuse from the top of the man's head to the ground?

d.) The man jumps off the original wall and 4 children are removed from the left side of the line. A new right triangle is formed. What is the new distance along the hypotenuse from the top of the wall to the ground?

e.) Each child lies down head-to-toe, taking up 3 feet each. The 6 foot man is still standing on the wall, but the wall is now shorter. If the distance along the hypotenuse from the top of the man's head to the ground is exactly 26 feet, what is the new exact height of the wall?