Hurricane Rich

Hurricane Rich recently swept through the Carolinas ripping many utility poles from the ground. Duke Power sent crews out immediately to restore power to the thousands of residents without power. As the crewmembers were replacing the broken poles, the lead crewmember, Mark German, was calculating the length of the guy wire (the strong cable that provides support to a utility pole) that would be needed to support the utility poles more efficiently. If the guy wire with a length of 23.8 meters is attached to a utility pole and the wire is anchored to the ground 9 meters from the base of the pole, how high above the ground is the guy wire attached to the utility pole? Round your answer to the nearest tenth of a meter. (Drawing a picture could be helpful.)

If a spool of wire holds 3000 meters of wire, how many utility poles can be repaired per spool?

Mark forgot his metric measuring tape and only has customary units for measuring length. If one meter is approximately 39 inches, how many feet of guy wire is needed for each utility pole?

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$$A^2 + B^2 = C^2$$
$$9^2 + B^2 = 23.8^2$$
$$B^2 = 23.8^2 - 9^2$$
$$B = \sqrt{23.8^2 - 9^2}$$
$$B \approx 22.0 \text{ meters}$$

If a spool of wire holds 3000 meters of wire, how many utility poles can be repaired per spool?

$$3000 \div 23.8 = 126.05 \rightarrow 126 \text{ utility poles}$$

Mark forgot his metric measuring tape and only has customary units for measuring length. If one meter is approximately 39 inches, how many feet of guy wire is needed for each utility pole?

$$\frac{1 meter}{39 inches} = \frac{23.8 meters}{x}$$

x = 928.2 inches
x = 928.2 ÷ 12 = 77.35 feet OR approximately 77 feet and 4.2 inches