

MATHCOUNTS[®] Problem of the Week Archive

Spring Growth – May 6, 2024

Problems

A 6-inch tall flower casts a 4-inch shadow at 5:00pm. One month later, when the sun was at the same position in the sky as it was at 5:00pm one month earlier, the shadow cast was $5\frac{1}{3}$ inches long. How many inches taller was the flower when it cast the $5\frac{1}{3}$ -inch shadow than it was when it cast the 4-inch shadow?

Two years ago Melanie planted two trees. Tree A was 24 inches tall when she planted it and Tree B was 40 inches tall when she planted it. If Tree A grows at a rate of 8 inches per year and Tree B grows at a rate of 6 inches per year, after how many more years will Tree A be as tall as Tree B?

Last spring, Fredrico's favorite topiary bush formed a perfect sphere with a diameter of 16 inches. Over the past year the bush's diameter has increased by one inch. By what percent has the volume of the bush's sphere increased? Express your answer to the nearest tenth.