Trig Models

Formulas	New Vocabulary

Mark Twain sat on the deck of a river steamboat. As the paddlewheel turned, a point on the paddle blade moved in such a way that its distance, d from the water's surface was a sinusoidal function of time. When his stopwatch read 4 seconds, the point was at its highest, 16 feet above the water's surface. The wheel's diameter was 18 feet, and it completed a revolution every 10 seconds.

a. Sketch a graph of the sinusoid.

b. Write the equation of the sinusoid.

c. How far above the surface was the point when Mark's stopwatch read 5 seconds?

d. What is the first positive value of time at which the point was at the water's surface? At that time, was it going into, or coming out of the water?

SUMMARY