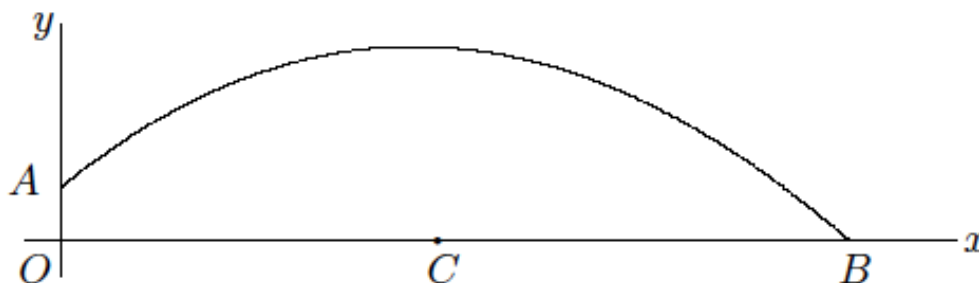


**Lesson Summary**

A *function* is a rule that assigns to each value of one quantity a single value of a second quantity. Even though we might not have a formula for that rule, we see that functions do arise in real-life situations

**Problem Set**

A ball is thrown across the field from point  $A$  to point  $B$ . It hits the ground at point  $B$ . The path of the ball is shown in the diagram below. The  $x$ -axis shows the horizontal distance the ball travels in feet, and the  $y$ -axis shows the height of the ball in feet. Use the diagram to complete parts (a)–(f).



- Suppose point  $A$  is approximately 6 feet above ground and that at time  $t = 0$  the ball is at point  $A$ . Suppose the length of  $OB$  is approximately 88 feet. Include this information on the diagram.
- Suppose that after 1 second, the ball is at its highest point of 22 feet (above point  $C$ ) and has traveled a horizontal distance of 44 feet. What are the approximate coordinates of the ball at the following values of  $t$ : 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, and 2.
- Use your answer from part (b) to write two predictions.
- What is happening to the ball when it has coordinates  $(88, 0)$ ?
- Why do you think the ball is at point  $(0, 6)$  when  $t = 0$ ? In other words, why isn't the height of the ball 0?
- Does the graph allow us to make predictions about the height of the ball at all points?