

- 37** (a) If the speed doubles, the radius of the curve quadruples or increases by a factor of 4.
- (b) Any ordered pair in the table may be used to determine the constant  $a$ .  $R(x) = ax^2$  and  $R(10) = 50 \Rightarrow a(10)^2 = 50 \Rightarrow a = \frac{50}{10^2} = 0.5$ . Thus, let  $R(x) = 0.5x^2$ .
- (c) If  $R = 500$ ,  $500 = 0.5x^2 \Rightarrow 1000 = x^2 \Rightarrow x = \pm \sqrt{1000} \approx 31.6$ .

The safe speed for a curve with radius 500 feet is about 31 mph or less.