

67 (a) $f(x) = \frac{2540}{x} \Rightarrow f(400) = \frac{2540}{400} = 6.35$ inches. A curve designed for 60 mph with a radius of 400 feet should have the outer rail elevated 6.35 inches.

(b) *Figure 67* show a graph of $Y_1 = 2540/X$. As the radius of the curve decreases, the elevation of the outer rail increases. This means that a sharper curve must be banked more. As the radius increases, the curve is not as sharp, and the elevation of the outer rail decreases.

[0, 600, 100] by [0, 50, 5]

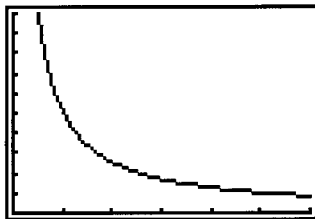


Figure 67

(c) Since the degree of the numerator is less than the degree of the denominator, the graph of $f(x) = \frac{2540}{x}$ has a horizontal asymptote of $y = 0$. As the radius of the curve increases without a maximum ($x \rightarrow \infty$), the tracks become straight and no elevation or banking ($y \rightarrow 0$) of the outer track is necessary.