

- 49 (a) The graph of H is shown in *Figure 49*. It is an increasing function, since more cargo requires more horsepower.
- (b) $H(30) = 0.157(1.033)^{30} \approx 0.42$. This means that approximately 0.42 horsepower are required for each ton that the locomotive is pulling at 30 mph.
- (c) To pull a 5000-ton train at 30 mph, approximately $0.42(5000) = 2100$ horsepower engine is needed.
- (d) $\frac{2100}{1350} \approx 1.56$. This value must be rounded up. Two locomotives having 1350 horsepower would move a 5000-ton train at 30 mph.

$[0, 100, 10]$ by $[0, 5, 1]$

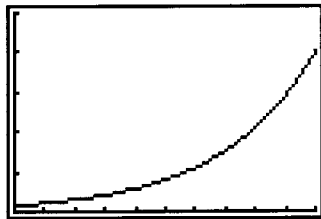


Figure 49