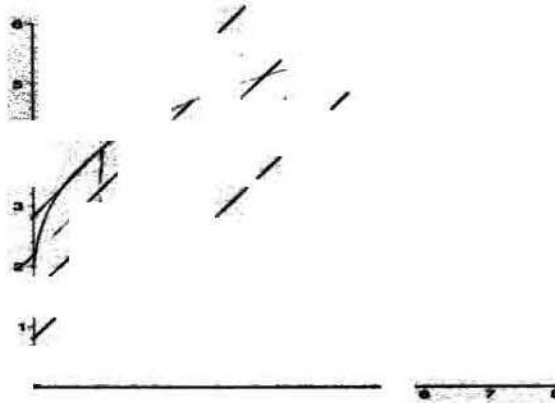


5. 10 points)



The above graph describes the revenue of Mammoth Corporation as a function of its advertising budget, expressed in hundreds of millions of dollars.

(a) Interpret the meaning of the  $y$ -intercept of the graph in the context of this problem.

$R(0) = 2$  indicates that without any advertising the company's revenue is 2 hundred million dollars.

(b) What does the concavity of the graph indicate in terms of revenue and the amount spent on advertising?

Although revenue is increasing, it is increasing at a slower & slower rate as advertising increases.

(c) What does the statement  $R'(4) = .297$  mean in practical terms?

After \$400 million on ads are spent, revenue will increase by only approx \$29.7 million for the next \$100 million in ads.

(d) Assuming the graph gives a valid estimate of the company's revenues as a function of money spent on advertising, should they spend as much as possible on advertising? If so, explain why. If not, explain why not and give your best approximation for the amount the company should spend.

No. Once  $R' < 1$ , spending more on ads means for each dollar spent on ads, the company takes in less than a dollar of increased revenue. So to like the company should spend ~ \$100 million on advertising (slope @  $x=1$  is approx. 1).