

Quiz 1 (20 points)

Name:

Section: 201/202 (circle one)

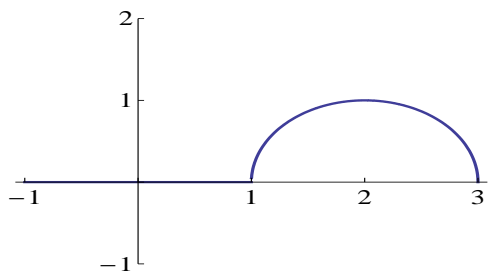
1. A biologist is growing mold in a Petri dish for an experiment. At noon she starts the experiment by inoculating (putting mold into) the dish. At 4 pm, she notices that the mold has grown to cover an area of 5 cm^2 . At 7pm, she returns and finds the mold now covers an area of 7 cm^2 . Let $f(t)$ be the area of the mold, in cm^2 , in the Petri dish t hours after noon.

(a) Assuming the area of the mold grows linearly over time, find a formula $l(t)$ which gives the area the mold covers t hours after noon. (3 points).

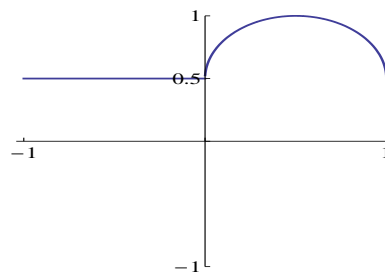
(b) Assuming the area of the mold grows exponentially over time, find a formula $e(t)$ which gives the area the mold covers t hours after noon. (3 points).

(c) Using your formula $e(t)$ from part (b), how long does it take for the area of the mold to triple? (3 points).

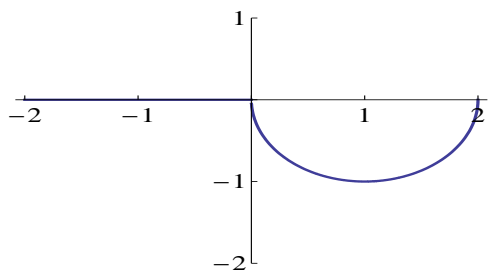
(d) Suppose the biologist returns at 9pm to find the mold has grown to 8.8 cm^2 . Which of your formulas more accurately predicts this growth? Justify your reasoning. (3 points).



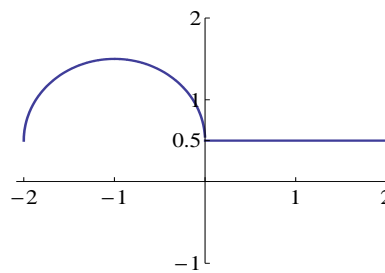
(a)



(b)

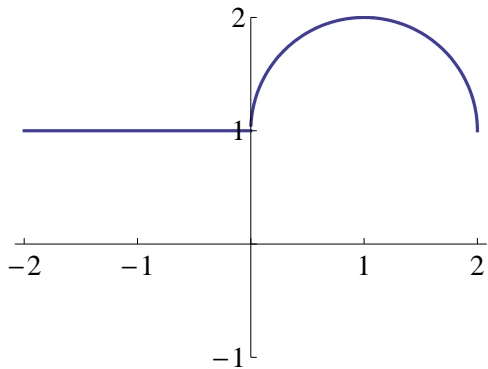


(c)



(d)

2. Given below is the graph of $y = f(x)$.



Find the function for the above graphs in terms of $f(x)$. (No partial credit, 8 points)

Write your answer here

(a)

(b)

(c)

(d)