

Your Name

Your Signature

Student ID #

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Quiz Section (circle one)

	Hui	Santosh
10:30	BA	BC
11:30	BB	BD

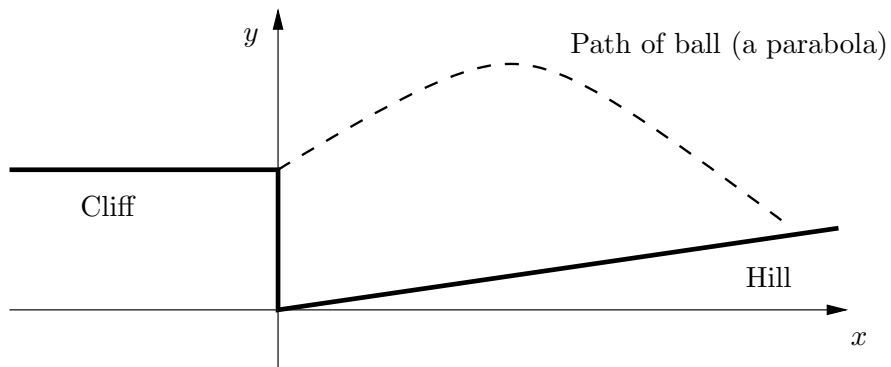
Problem	Total Points	Score
1	18	
2	10	
3	10	
4	12	
Total	50	

- You are allowed to use one sheet (8.5 by 11 inches) of handwritten notes for this exam. (You may write on both sides.) You are not allowed to share notes.
- You may use a scientific calculator, but not a graphing calculator. You may not use PDAs, such as Palm Pilots. You are not allowed to share calculators.
- In order to receive partial credit, you must show your work. Be wary of doing computations in your head. Instead, write out your computations on the exam paper.
- Your answers should either be *exact answers* (like  $2\sqrt{2}$ ) or rounded to two digits after the decimal (like 2.82) in whatever units you're using. Be careful not to round intermediate calculations whenever possible, as you will lose points for errors due to incorrect rounding.
- Place **YOUR FINAL ANSWER** to each question in the box provided.
- If you need more room, use the backs of the pages and indicate to the grader that you have done so.
- Raise your hand if you have a question.
- Good luck!

1 (18 points) You are hitting a golf ball onto a hill, as shown below. The ball travels along the path

$$y = -\frac{1}{50}x^2 + \frac{95}{10}x + 250$$

in the coordinate system shown. (Both  $x$  and  $y$  are measured in feet.) We are also told that the hill rises vertically 20 feet every 100 horizontal feet.



**Warning:** This picture is not to scale!

(a) (3 points) Find the equation that models the hill. (You only need to consider when  $x \geq 0$ .)

Hill:

(b) (3 points) How high is the cliff off which the ball is hit?

The cliff is  feet high.

- (c) (6 points) What are the coordinates of the highest point **over the hill** that the ball reaches?  
(That is, where is the vertical distance of the ball over the hill greatest?)

At  $(x, y) =$

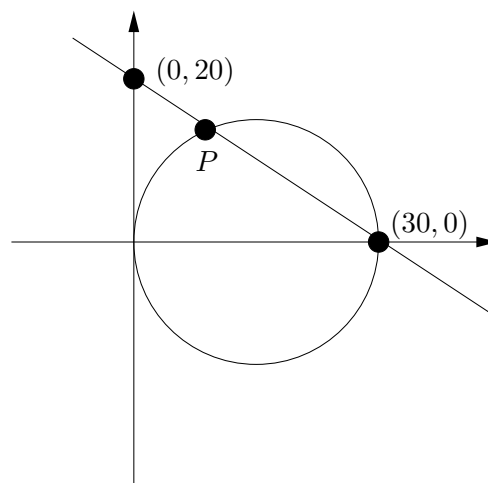
- (d) (6 points) What is the  $x$  coordinate of the point where the ball lands on the hill?

At  $x =$



3 (10 points) The picture to the right shows a circle and a line.

(a) (3 points) Find the equation of the line.



Line:

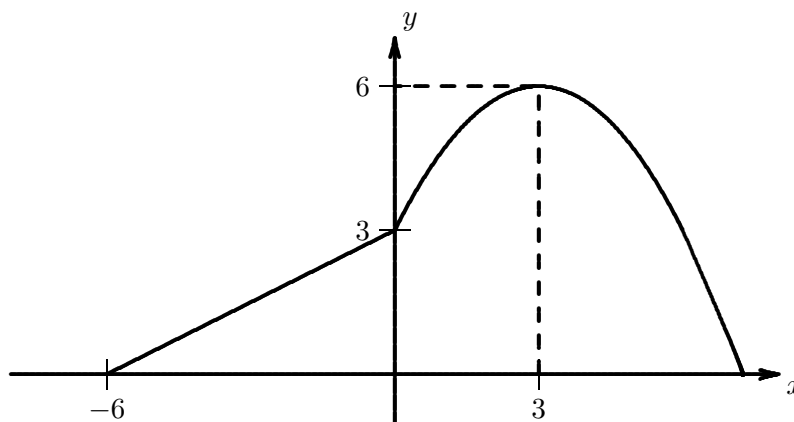
(b) (3 points) Find the equation of the circle.

Circle:

(c) (4 points) Find the coordinates of the point  $P$ .

$(x, y) =$

4 (12 points) On the coordinate system below is a graph of the function  $y = f(x)$ . This graph consists of a line segment and part of a parabola.



(a) (6 points) Find the multi-part formula for the function  $f(x)$ . Please give the domain.

$y = f(x) =$

(b) (6 points) On the axes below, *carefully* graph  $y = 2f(3x)$ .

