

**Advanced Precalculus**  
**Problem(s) of the Week**  
**January 30, 2012**

Name: \_\_\_\_\_

**DUE Monday, February 6, 2012**

- 1.) Some Mondays, you will be given the "Problems of the Week" due the following Monday. You must show conclusive work for full credit.
- 2.) The number of points awarded to a correct solution is stated next to the problem. There is no penalty for an incorrect solution, but **you must work individually**. Partial Credit is possible if you have good ideas but don't get the correct answer.  
- (Honor System -- if two people submit identical solutions, they will be ignored.)
- 3.) You are permitted to speak with Mr. Hamilton about the problems outside of class during the week. That does not mean I will necessarily give hints, but I will listen to what you have to say.
- 4.) Detailed work should be on separate, attached sheets of paper.

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**#1 (3 Bonus Points)**

A circle has center at  $(0,0)$  and radius of 2.

A line passes through  $P(3,1)$  and is tangent to the circle at point  $T$  in the first quadrant.

Find the **exact** coordinates of the tangent point  $T$ .

