

**Advanced Precalculus
Problem(s) of the Week
February 13, 2012**

Name: _____

DUE Tuesday, February 21, 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)

Rectangle MATH has an area of 2012. An ellipse with area 2012π surrounds MATH such that the ellipse passes through the points M and T and has its focal points at H and A.

What is the perimeter of the rectangle, in exact form (no decimals)?

Note: It helps to know that the area of an ellipse is πab , where a and b are the distances from the center to its major axis endpoint and from the center to its minor axis endpoint.

Hint: Consider everything we have discussed about an ellipse, including its definition.