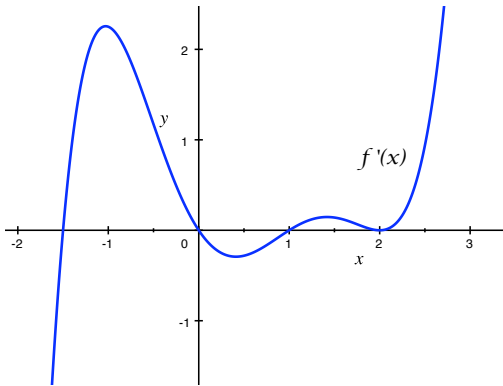


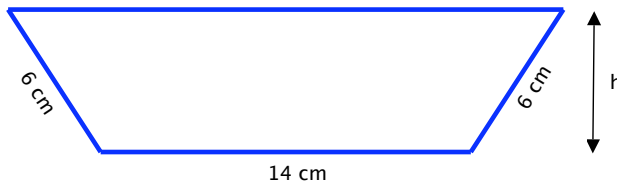
**Math 124 Worksheet #7**  
**June 8, 2007**

1. The following is a graph of  $f'(x)$ .

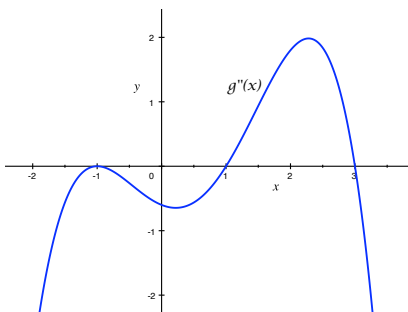


- (a) For what values of  $x$  is  $f$  increasing?  
Decreasing?
- (b) At what values of  $x$  does  $f$  have a local max? A local min?
- (c) For what values of  $x$  is  $f$  concave up?  
Concave down?
- (d) What are the  $x$ -coordinates of the inflection points of  $f$ ?
- (e) Assuming  $f(0) = 0$ , give a rough sketch of  $f$ .

2. An isosceles trapezoid has a base of 14 cm and slant sides of 6 cm as shown in the figure below. What is the largest area of such a trapezoid?



3. The following is a graph of  $g''(x)$ .



- (a) For what values of  $x$  is  $g$  concave up?  
Concave down?
- (b) What are the  $x$ -coordinates of the inflection points of  $g$ ?

4. A box with a square base and open top must have volume of  $4000 \text{ in}^3$ . Find the dimensions of the box that minimizes the amount of material used.

5. Find an equation for the slant asymptote of  $h(x) = \frac{4x^4 + x^3}{2x^3 + 2}$ .