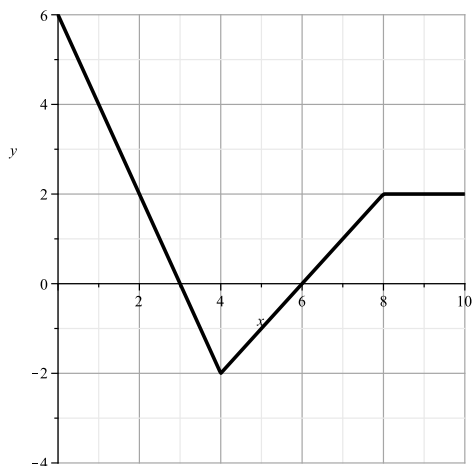


# Spring 2012 Math 152

**Week in Review I**  
*courtesy: Amy Austin*  
(covering sections 6.4-6.5)

## Section 6.4 and 6.5

1. If  $g(x) = \int_0^x f(t) dt$ , where the graph of  $f(t)$  is given below, where  $0 \leq x \leq 10$ , evaluate  $g(0)$ ,  $g(3)$ ,  $g(6)$  and  $g(10)$ . What is the maximum value of  $g(x)$ ?



2. Find  $\frac{d}{dx} \left( \int_{x^2}^{\sin x} \frac{\cos t}{t} dt \right)$

3.  $\int \frac{\sqrt{x} + x^2 - x^3}{\sqrt[4]{x^3}} dx =$

4.  $\int_0^1 (x^3 - 2)^2 dx =$

5.  $\int \left( \frac{1}{\sqrt{1-x^2}} - 4x^{-1} + 3^x + \frac{2}{x^2+1} - \frac{1}{x^2+4} \right) dx =$

6.  $\int 5x^2(3x^3 - 1)^8 dx =$

7.  $\int_0^1 x^2 e^{2x^3-5} dx =$

8.  $\int_{-4}^0 \frac{1}{\sqrt{1-2x}} dx =$

9.  $\int_1^{1/2} \cos \pi x dx =$

10.  $\int \frac{e^x}{1+e^x} dx =$

11.  $\int \frac{e^x}{1+e^{2x}} dx =$

12.  $\int_0^{\pi/12} \tan(3x) dx =$

13.  $\int_{-1}^2 \frac{5}{2x+1} dx =$

14.  $\int \frac{\sin t}{\cos^5 t} dt =$

15.  $\int \frac{x}{\sqrt{x+1}} dx =$

16.  $\int \frac{2x^3}{x^2-1} dx =$

17.  $\int \frac{\sec^2(\sqrt{x})}{\sqrt{x}} dx =$

18.  $\int \frac{\arctan x}{x^2+1} dx =$

19.  $\int \frac{\cos(\ln x)}{x} dx =$