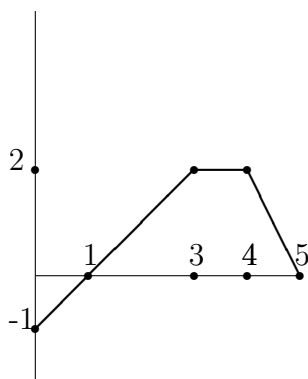


MATH 181
Midterm exam
February 10, 2006

Name:

Discussion time:

1. The graph of a function $g(x)$ is given by:



Let G be an antiderivative for g on the interval $[0, 5]$ with $G(1) = 2$. Compute $G(0)$, $G(3)$ and $G(5)$.
(15pts)

2. On the planet Penthesilea IV, the gravitational acceleration is $-20\text{ft}/\text{sec}^2$. A stone is thrown upwards from a height of 60ft with initial velocity 100ft/sec.

- When will the stone reach its maximum height?
- What is the maximum height reached by the stone?

(15pts)

3. Differentiate the function:

$$T(x) = \int_1^{\cos x} e^{t^2} dt$$

(10pts)

4. Compute the definite integral:

$$\int_0^1 x e^{2x} dx$$

(15pts)

5. Find:

$$\int \frac{x}{\sqrt{x+4}} dx$$

(10pts)

6. Find:

$$\int \frac{dx}{x^2 - 3x + 2}$$

(15pts)

7. Find:

$$\int x^6 \ln x dx$$

(10pts)

8. Find:

$$\int \arctan x dx$$

(10pts)