Calculus I Professor: Fred Katiraie Quiz Eight

Name:_____

1) Find the general indefinite integral.

a) $\int \frac{\sin x}{1-\sin^2 x}\,dx$ hint: $\sin^2 x + \cos^2 x = 1$ (2 point)

b) $\int \left((1-\frac{1}{\sqrt{x}})(1+\frac{1}{\sqrt{x}}) \right) dx$ (1 point)

c) $\int \frac{t^3+2t^2}{\sqrt{t}}\,dt$ (1 point)

d) $\int \pi^3 dx$ (1 point)

e) $\int \left(\sec^2 t + t^2 + 2 \right) dt$ (1 point)

f) $\int \frac{\sin 2x}{\sin x}\,dx$ hint: sin2x = 2 sinx cosx (2 point)

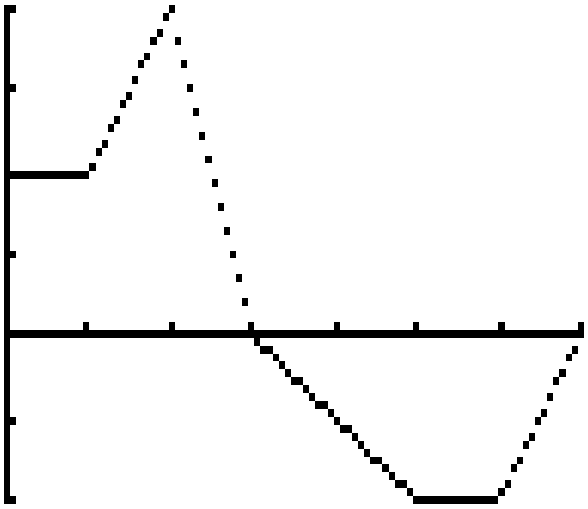
2) Given the velocity function (in meters per second) for a particle along a line is $v(t) = t^2 - 2t - 8 \quad , \quad 1 \le t \le 6$

a) Find the displacement of the particle during the above interval. (2 points)

b) Find the distance traveled by the particle during the above interval. (2 points)

3) Let $g(x) = \int_0^x f(t)\, dt$, where f(t) is the function whose graph is shown below.

(2 points Each)



a) Evaluate g(6)

b) On what interval is g increasing?

c) Where does g have a maximum value?

d) On what interval is g concave downward?