

MAT3-121 Calculus of a Single Variable

Quiz 6 November 21, 2016

Solution

name

1. (4 pts.) Find

a. $\int e^x dx$

$$e^x + C$$

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

$$x + \ln|x| + \frac{2}{3} x^{3/2} + C$$

2. (4 pts.)

a. $\int_0^{\pi/4} \cos x dx$

$$\sin x \Big|_0^{\pi/4} = \sin \frac{\pi}{4} - \sin 0 = \frac{\sqrt{2}}{2}$$

b. $\int_{-1}^1 \sqrt{1-x^2} dx$

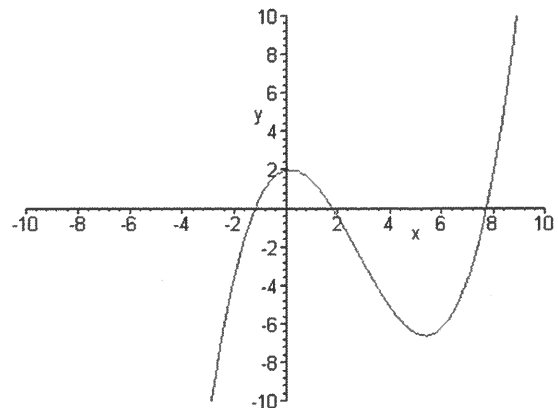


semicircle
radius 1

$$\frac{\pi}{2}$$

3. (3 pts.) For the function $f(x)$ at the right let

$$A(x) = \int_0^x f(t) dt$$



a. Which is larger $A(1)$ or $A(2)$?

$A(2)$ more pos. area.

b. Which is larger $A(2)$ or $A(3)$?

$A(2)$ less neg area.

c. Is $A(-1) > 0$?

No pos area but in neg. dir.