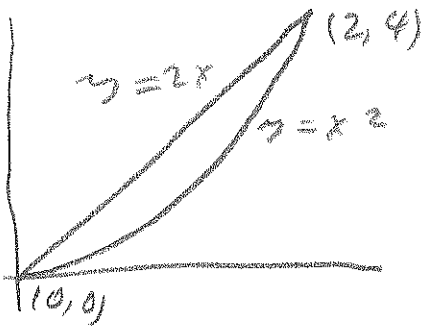
Mathematics 122

Quiz # 20 Name: Key

You must show your work to get full credit.

1. (a) Graph $y = 2x$ and $y = x^2$ for $0 \le x \le 2$.

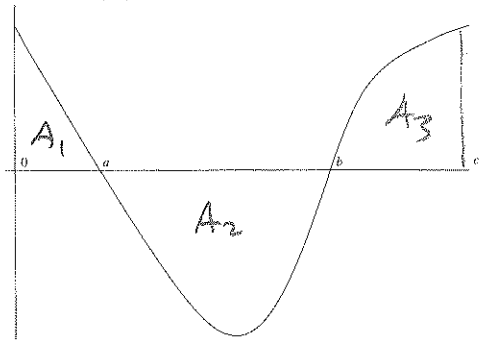


(b) Find the area between these two graphs. Area is 1.3333

$\int_0^2 (2x - x^2)\,dx$

= fnInt(2X−X^2, X, 0, 2)

2. The following is the graph of $y = f(x)$.



We have

$\int_0^a f(x)\,dx = 2$, $\int_b^c f(x)\,dx = 4$, $\int_0^c f(x)\,dx = 1$.

$A_1 = 2$ $A_3 = 4$ $A_1 - A_2 + A_3 = 1$

$\Rightarrow A_2 = A_1 + A_3 - 1 = 5$

(a) What is $\int_a^b f(x)\,dx$? $\int_a^b f(x)\,dx = -A_2 = -5$

(b) What is $\int_0^b f(x)\,dx$? $\int_0^b f(x)\,dx = A_1 - A_2 = 2 - 5 = -3$