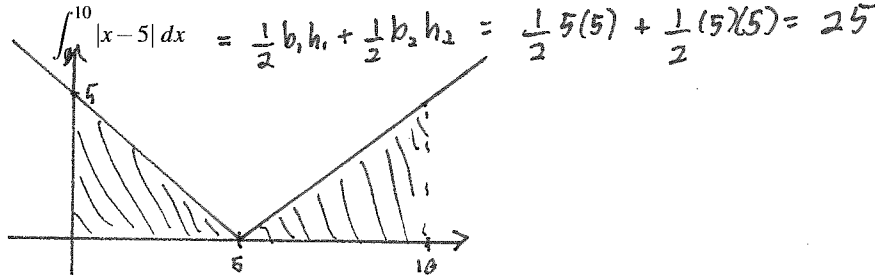


### Quiz 3

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

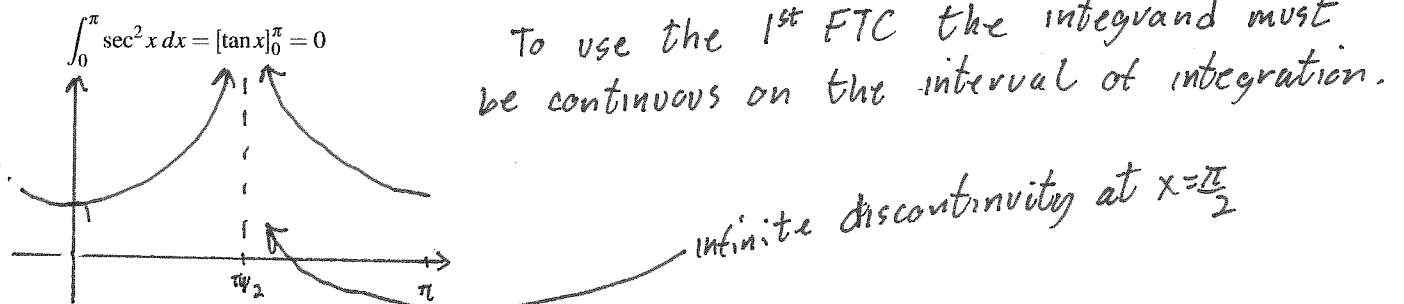
Question 1. (2 marks) §5.2 #36 Evaluate the integral by interpreting it in terms of areas.



Question 2. (2 marks) §5.2 #38 Evaluate  $\int_1^{-1} x^2 \cos x dx$ .

$\int_1^{-1} x^2 \cos x dx = 0$  since we have shown in class that  $\int_a^a f(x) dx = 0$

Question 3. (2 marks) §5.3 #29 What is wrong with the equation?



Question 4. (4 marks) §5.3 #21 Evaluate the integral.

$$\begin{aligned} \int_1^{64} \frac{1 + \sqrt[3]{x}}{\sqrt{x}} dx &= \int_1^{64} \frac{1}{\sqrt{x}} + \frac{\sqrt[3]{x}}{\sqrt{x}} dx \\ &= \int_1^{64} x^{-1/2} + \frac{x^{1/3}}{x^{1/2}} dx \\ &= \int_1^{64} x^{-1/2} + x^{-1/6} dx \\ &= \left[ 2\sqrt{x} + \frac{6}{5}x^{5/6} \right]_1^{64} \\ &= \left[ 2\sqrt{64} + \frac{6}{5}(64)^{5/6} \right] - \left[ 2 + \frac{6}{5} \right] \\ &= \left[ 16 + \frac{6}{5}32 \right] - \left[ 2 + \frac{6}{5} \right] \end{aligned}$$

$\rightarrow = \frac{256}{5}$