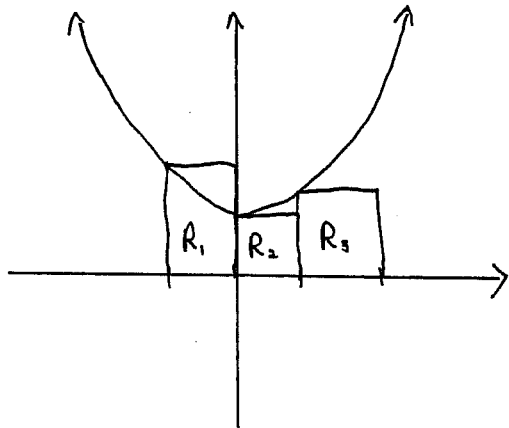


## Quiz 3

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.

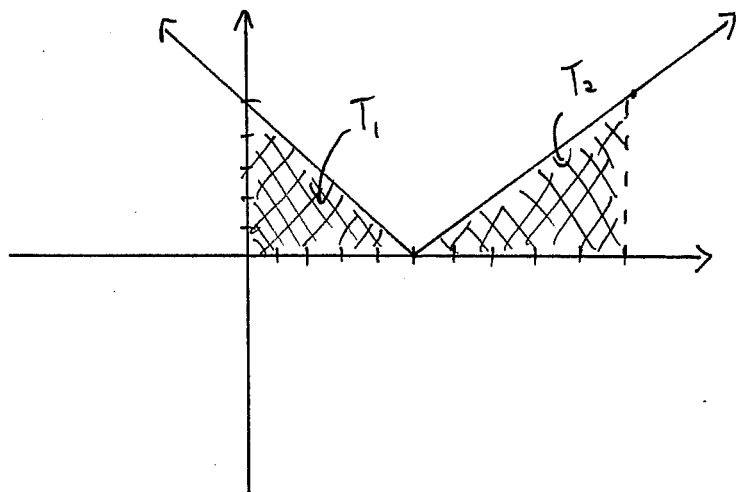
**Question 1.** (5 marks) §5.1 #5 Estimate the area under the graph of  $f(x) = 1 + x^2$  from  $x = -1$  to  $x = 2$  using three rectangles and using left endpoints. Sketch the curve and the approximating rectangles.



$$\begin{aligned}
 \text{Area} &\approx R_1 + R_2 + R_3 \\
 &= f(-1) \cdot 1 + f(0) \cdot 1 + f(1) \cdot 1 \\
 &= (1 + (-1)^2) \cdot 1 + (1 + 0^2) \cdot 1 + (1 + 1^2) \cdot 1 \\
 &= (2) \cdot 1 + 1 \cdot 1 + 2 \cdot 1 \\
 &= 5
 \end{aligned}$$

**Question 2.** (5 marks) §5.2 #36 Evaluate the integral by interpreting it in terms of areas.

$$\int_0^{10} |x - 5| dx$$



$$\begin{aligned}
 \text{Area} &= T_1 + T_2 \\
 &= \frac{b_1 h_1}{2} + \frac{b_2 h_2}{2} \\
 &= \frac{5(5)}{2} + \frac{5(5)}{2} \\
 &= 25
 \end{aligned}$$