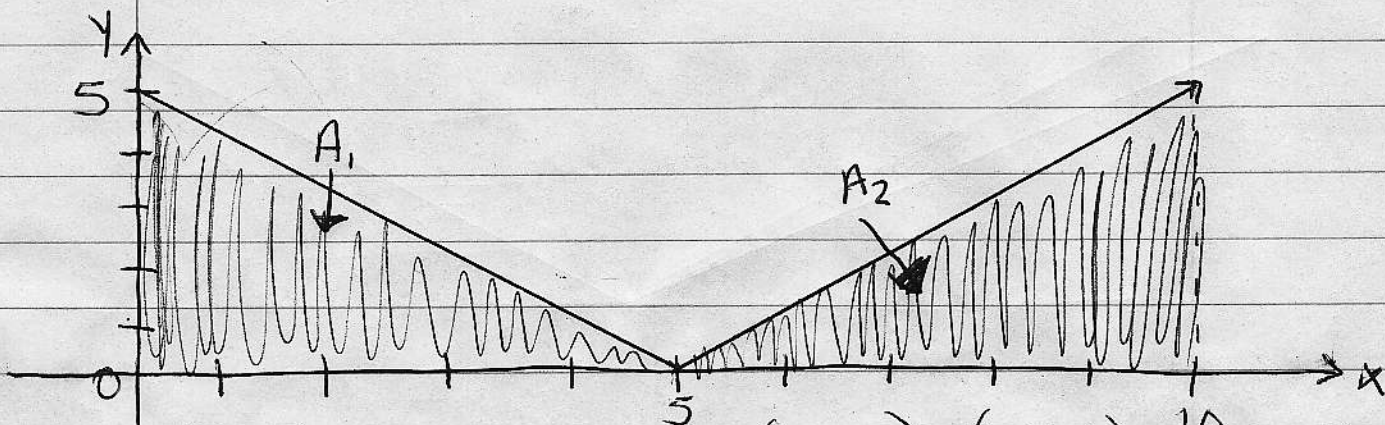


38) Evaluate the integral by interpreting it in terms of areas.

$$\int_0^{10} |x-5| dx \quad \int_a^b f(x) dx = A_1 + A_2$$



$$y = |x-5| \quad A = \frac{1}{2}bh \quad \left(\frac{1}{2}(5) \cdot 5\right) + \left(\frac{1}{2}(5) \cdot 5\right) = \boxed{25}$$

Finding Area Using Antiderivatives

$$\int_0^{10} |x-5| dx = \int_0^5 |x-5| dx + \int_5^{10} |x-5| dx$$

$$\int_0^5 (-x+5) dx + \int_5^{10} (x-5) dx$$

$$\int_0^5 -\frac{1}{2}x^2 + 5x + \int_5^{10} \frac{1}{2}x^2 - 5x$$

$$F(5) - F(0) = 12.5 - 0 = 12.5$$

$$F(10) - F(5) = 0 - (-12.5) = 12.5$$

$$12.5 + 12.5 = \boxed{25}$$