Mathematics 122

Quiz #32 Name: Key

You must show your work to get full credit.

During a storm water flows into a storage tank at the rate of

$$r(t) = \frac{10t^2}{1+t^4} \text{gal/}\cancel{\text{min}}\ \text{hour}$$

where t is the number of hours after the storm started.

1. How much rain flowed into the tank in the second two hours of the storm? (That is between $t = 1$ and $t = 3$.)

$\int_1^3 r(t)\,dt$ = fnInt(10X^2/(1+X^4), X, 1, 3) = 5.3446 gal

2. If the tank started with 500 gallons, then how much did it contain 4 hours after the storm started?

$500 + \int_0^4 r(t)\,dt$ 508.609 gal.

= 500 + fnInt(10X^2/(1+X^4), X, 0, 4)