

October 16

SWBAT:

Apply definite integrals
to real world applications

Joe is filling up his pool. Water flows out of the hose into a pool at a rate modeled by the equation:

$f(x) = 0.7x^3 - 3x + 7$, where x is measured in hours.

If there are 10 gallons of water in the pool when he starts filling it up, how much is in the pool after 5 hours?

$$\begin{aligned} & \int_0^5 (0.7x^3 - 3x + 7) dx + 10 \\ &= 116.875 \text{ gallons} \\ &= \left. \frac{0.7x^4}{4} - \frac{3x^2}{2} + 7x \right|_0^5 \end{aligned}$$