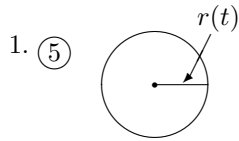


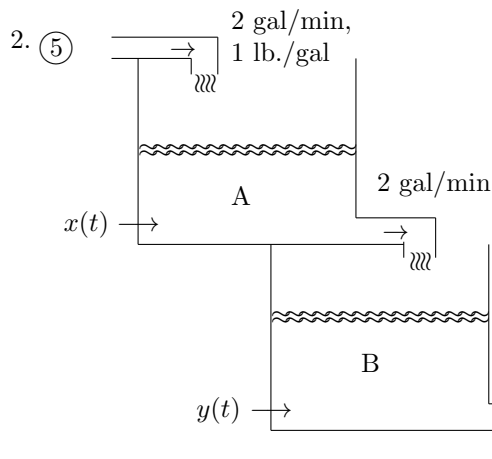
NAME _____

SECTION #

For the following situations, write down the ode or system of ode's which describe the dynamics.



A spherical drop of radius $r(t)$, r cms., t minutes evaporates at a rate proportional to its surface area. Given that the volume $V(t) = \frac{4}{3}\pi r^3$ and the surface area $S(t) = 4\pi r^2$, write an ode for $r(t)$.



Write down a system of 2 ode's for the amounts of salt $x(t), y(t)$ lbs. in tanks A and B at t minutes given the initial volumes in each 2 gal/min tank were 10 gals. and that the initial concentration were zero.

$$\frac{dx}{dt} =$$

$$\frac{dy}{dt} =$$

What are $x(0), y(0)$?

To what values do $x(t), y(t)$ tend as $t \rightarrow +\infty$?

$x(t) \rightarrow$

$y(t) \rightarrow$