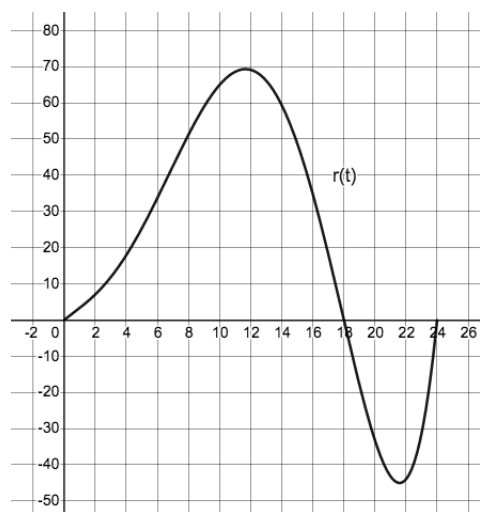Name: _____

I1 and I3 Warm-up

The following is a graph of $r(t)$, which represents the fluid flow (in gal/hr) into a metal tank over a 24 hour period. Positive values indicate fluid is flowing into the tank. Negative values indicate fluid is flowing out of the tank.

1. Over the 24 hour period, when does the tank contain the most fluid? Explain.

2. Describe in a sentence: what does $\int_4^8 r(t)\,dt$ represent in this context? What do the 4 and 8 represent? What are the units?

3. Estimate $\int_0^{24} r(t)\,dt$ using 6 left-rectangles. Show your work and explain whether you think this is an over or under estimate.