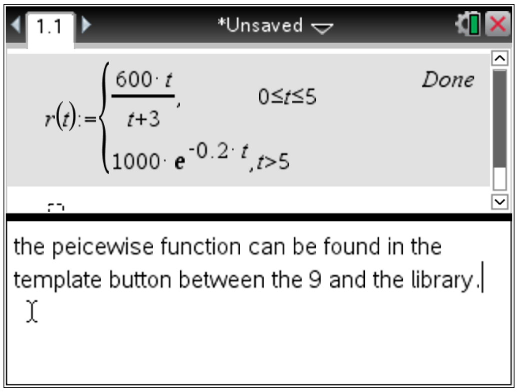
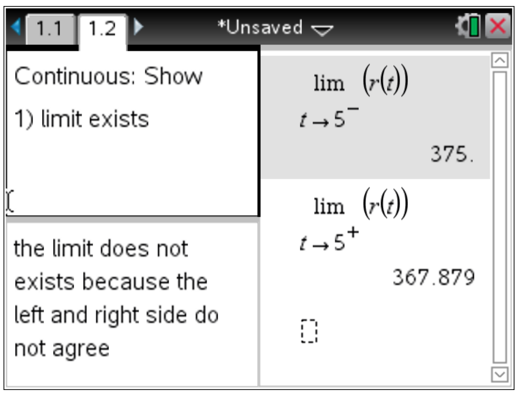
AP Calculus
Technology Tuesday #3 Calculator Solutions

Name: ______________________________
Date: ___________________ Per: _____

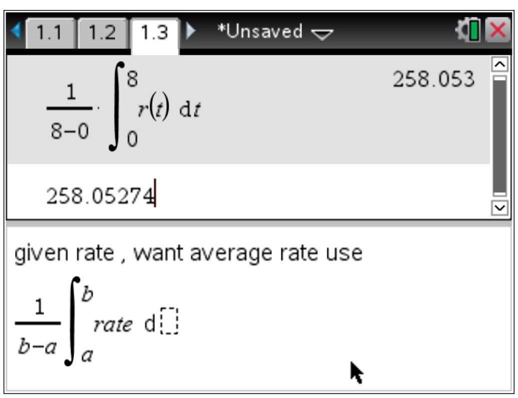
1.



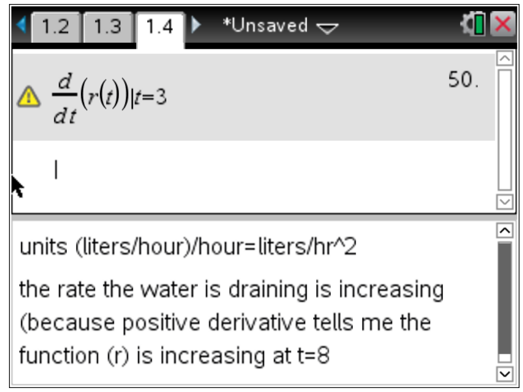
a.



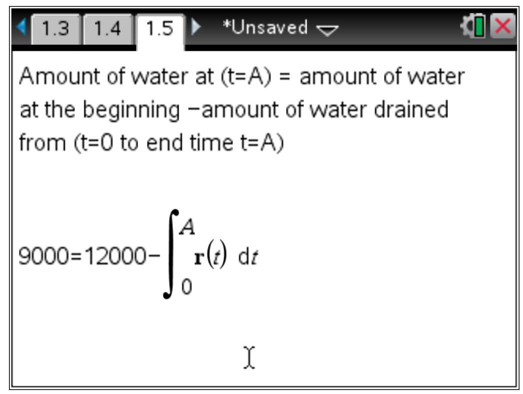
b.



c.



d.



2.

a.

acceleration is the derivative (slope) of velocity

$a(7.5)=v'(7.5)=\frac{v(8)-v(7)}{8-7}$ mil/min^2

$\frac{0.2-0.3}{8-7}$ -0.1

b.

the integral is the TOTAL distance (sign is irrelevant) Caren so we need to break up the area into chunks from 0 to 2, 2 to 4, 5 to 6, 6 to 7, (first line)

7 to 8, 8 to 11, 11 to 12. (second line)

$\frac{1}{2}\cdot 2\cdot 0.2+\frac{1}{2}\cdot 2\cdot 0.2+\frac{1}{2}\cdot 1\cdot 0.3+1\cdot 0.3$ 0.85

$\frac{0.3+0.2}{2}\cdot 1+3\cdot 0.2+\frac{1}{2}\cdot 1\cdot 0.2$ 0.95

0.85+0.95 1.8

c. Changes in direction happen when velocity =0 and changes sign, this occurs at t=2. (shes goes from positive velocity to negative meaning she went back home). She also changed directions at t=4 but since she went from negative to positive that means she went from home to school, the questions only asks for t=2

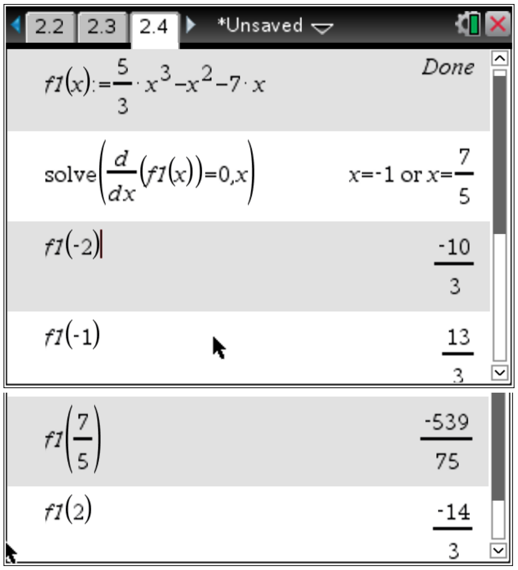
d.

$w(t):=\frac{\pi}{15}\cdot \sin\left(\frac{\pi}{12}\cdot t\right)$ *Done*

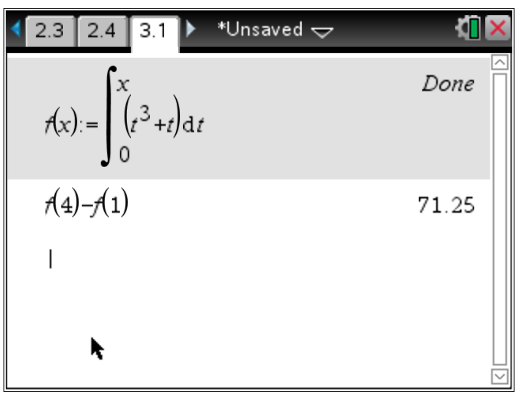
$\int_0^{12} w(t)\,dt$ 1.6

Carens distance is the same as (b) but with signs included to the first two triangles sum to zero and we only add the area from 5 to 12 which is 1.4

3. Have to check critical points and endpoints for highest value



4.



5.