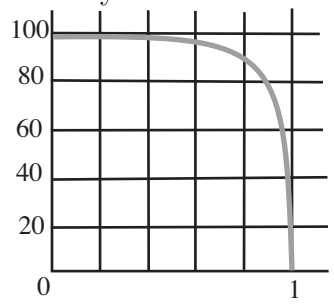
Math 29
In-class problems on signed area

1. The graph of a function is given in the figure below. Which of the following numbers could be an estimate of $\int_0^1 f(t)dt$ which is accurate to two decimal places? Why?



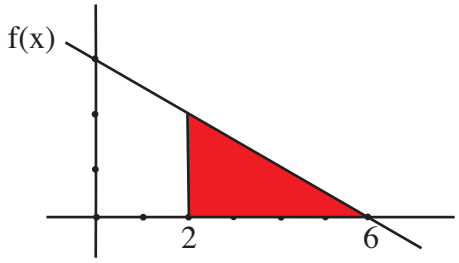
   a) -98.35

   b) 71.84

   c) 100.12

   d) 93.47

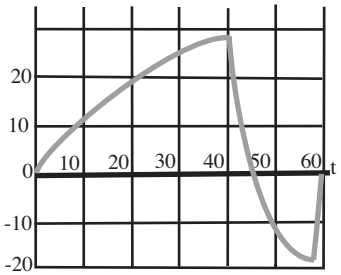
2. The graph of $f(x)$ is given in the figure below.



   (a) What is $\int_{-3}^0 f(x)dx$?

   (b) Estimate $\int_{-3}^4 f(x)dx$ in terms of the signed area A of the shaded region.

3. The vertical velocity of a hot air balloon is shown in the graph below. Upward velocity is positive and downward velocity is negative.



(a) Over what intervals was the acceleration positive, negative, zero?

(b) What was the greatest altitude achieved?

(c) At what time was the upward acceleration the greatest?

(d) At what time was the downward acceleration the greatest?

(e) Assuming that the flight started at sea level, at what altitude did the flight end?