1.f(0.25)=1.189069
absolute error=1.060930

2.
a)
at t=10:
position(in feet)=7.425028
speed(in feet per second)=48.381736

b)at t=5.6488025s, it crosses the speed limit for first time(found roots of f(x)-55miles/hr=0)

c)max speed of the car:119.4173(found f'(x) values for all x such that f''(x)=0)

3.
a)f(0.43)~2.4777,f'(0.43)~3.4366
b)f(0.25)~1.1965,f'(0.25)~0.3915

4.
The spline polynomials have the coefficients(in the order x^3,x^2,x,1):
[12.373172074666664 ,27.795675786666663 ,18.627197749333334 ,4.066688837333333]
[-12.496177903999998, -9.508349181333331 ,-0.024814734666666, 0.958020090000000]
[13.313368901333329 ,-9.508349181333331 ,-0.024814734666667, 0.958020090000000]

5.
a)
Using natural spline:
at t=10s:
position(in feet):772.7556477639466
speed(in feet per second): 70.998616874135564

b)
Using clamped spline:
at t=10s:
position(in feet):772.7812192723696
speed(in feet per second): 71.074483775811188