[9]

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""" Sydney Zheng, 09-101 """

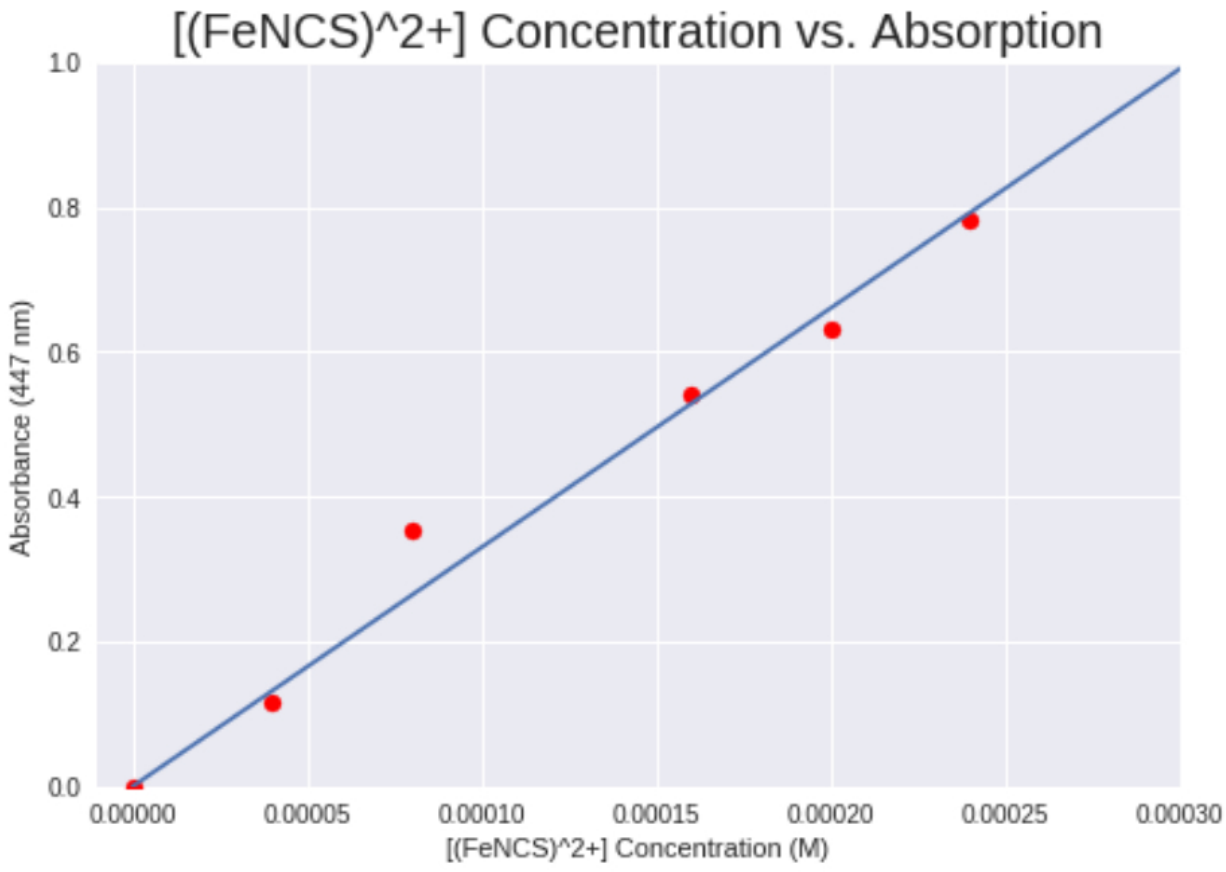
import numpy as np
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt

# linear regression
A = np.array([.000,.115,.353,.540,.630,.782])
PC = [0.0,4.00,8.00,16.00,20.00,24.00]
PC = np.array([[pc * pow(10, -5)] for pc in PC])

reg = LinearRegression(fit_intercept=False).fit(PC, A)
score = reg.score(PC, A)

def eq(x):
  return reg.coef_[0] * x + reg.intercept_

plt.title("[(FeNCS)^2+] Concentration vs. Absorption",fontsize=20)
plt.xlabel("[(FeNCS)^2+] Concentration (M)")
plt.ylabel("Absorbance (447 nm)")
plt.xlim(-1*pow(10,-5),30*pow(10,-5))
plt.ylim(0,1)
plt.scatter(PC,A,color="red")
X = np.array([float(i)/10.0 for i in range(10)])
plt.plot(X, eq(X))
plt.show()
print("Sydney Zheng")
print("Equation:\ty = {}x + {}".format(reg.coef_[0],reg.intercept_))
print("R^2 Score:\t {}".format(score))
print()
```

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Sydney Zheng
Equation:       y = 3299.69512195122x + 0.0
R^2 Score:       0.9797441243919446
```