21 When implementing linear regression of some dependent variable y on the set of independent variables $\mathbf{x} = (x_1, \ldots, x_r)$, where r is the number of predictors, which of the following statements willbe true?

a) $\beta_0, \beta_1, \ldots, \beta_r$ are the regression coefficients.

b) Linear regression is about determining the best predicted weights by using the method of ordinary least squares.

c) E is the random interval

d) Both and b

22)What indicates that you have a perfect fit in linear regression?

a) The value $R^2 < 1$, which corresponds to SSR $= 0$
b) The value $R^2 = 0$, which corresponds to SSR $= 1$
c) The value $R^2 > 0$, which corresponds to SSR $= 1$
d) The value $R^2 = 1$, which corresponds to SSR $= 0$

23)In simple linear regression, the value of what shows the point where the estimated regression line crosses the y axis?

a) Y
b) B0
c) B1
d) F

24)Check out these four linear regression plots:
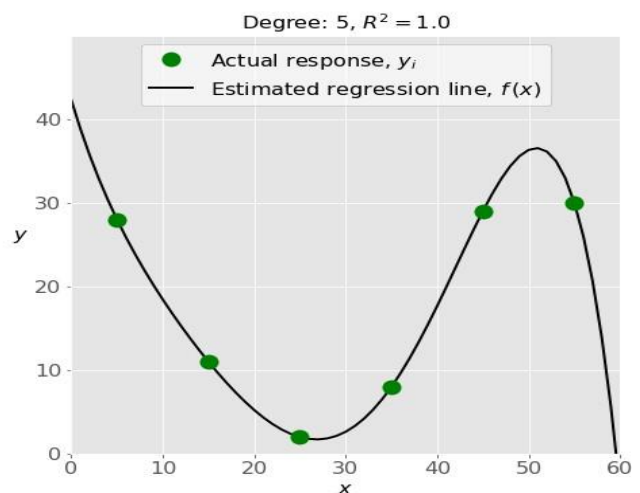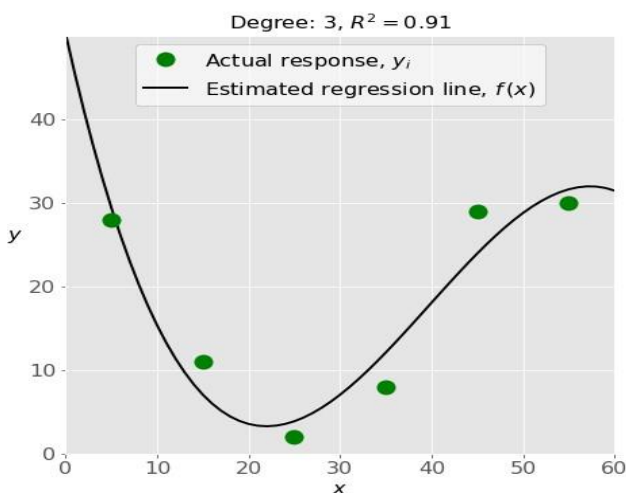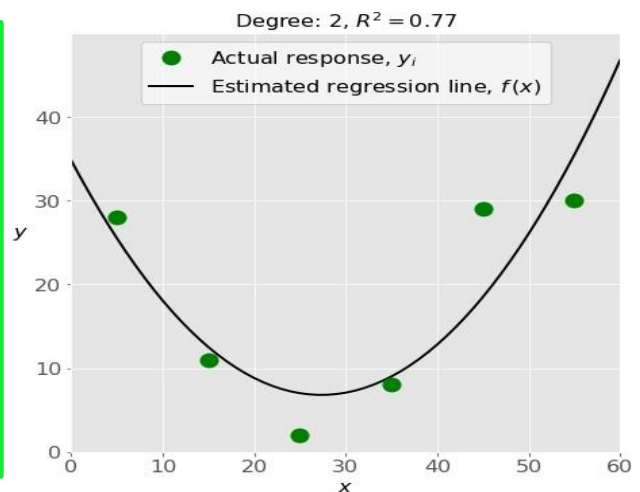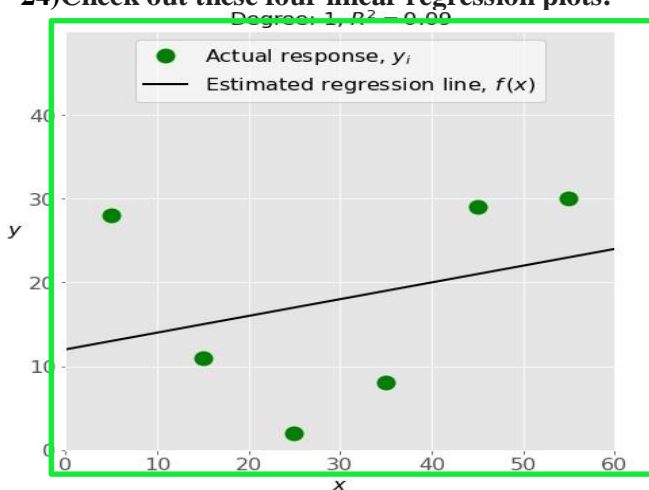
Which one represents an underfitted model?

a) The bottom-left plot

b) The top-right plot

c) The bottom-right plot

d) **The top-left plot**

25) There are five basic steps when you're implementing linear regression:

- **a.** Check the results of model fitting to know whether the model is satisfactory.
- **b.** Provide data to work with, and eventually do appropriate transformations.
- **c.** Apply the model for predictions.
- **d.** Import the packages and classes that you need.
- **e.** Create a regression model and fit it with existing data.

However, those steps are currently listed in the wrong order. What's the correct order?

a) e, c, a, b, d
b) e, d, b, a, c
c) d, e, c, b, a
d) d, b, e, a, c

26) Which of the following are optional parameters to LinearRegression in scikit-learn?

a) Fit
b) fit_intercept
c) normalize
d) copy_X
e) n_jobs
f) reshape

27) While working with scikit-learn, in which type of regression do you need to transform the array ofinputs to include nonlinear terms such as x^2?

a)Multiple linear regression

b) Simple linear regression

c) Polynomial regression

28) You should choose statsmodels over scikit-learn when:

A)You want graphical representations of your data.

b) You're working with nonlinear terms.

c) You need more detailed results.

d) You need to include optional parameters.

29) _____is a fundamental package for scientific computing with Python. It offers comprehensive mathematical functions, random number generators, linear algebra routines, Fouriertransforms, and more. It provides a high-level syntax that makes it accessible and productive.

a) Pandas

b) Numpy

c) Statsmodel

d) scipy

30)_____is a Python data visualization library based on Matplotlib. It provides a high-levelinterface for drawing attractive and informative statistical graphics that allow you to explore and understand your data. It integrates closely with pandas data structures.

a) Bokeh
b) **Seaborn**
c) Matplotlib
d) Dash