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

~~a) $\beta_0, \beta_1, \cdots, \beta_r$ 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~~

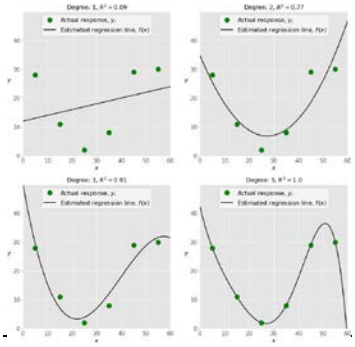
~~c) The value $R^2 > 0$, which corresponds to SSR = 1~~

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 of inputs 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, Fourier transforms, 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-level interface 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~~