Questions A: True or False

1- true

2-false

3- true

4- false

5- true

Questions B: True or False

1. True
2. True
3. False
4. False
5. True

Questions C

1. Because the cross validation uses all the data for training and validation do average on the k folds and with that, we can detect if there is variance in data, so it is better and reliable estimate
2. Scoring an extremely low error at training data set and high error on validation
3. The best option for us in this case is the live one group out cross validation because the data in this case represents groups of something

Question D: Fix the code

import numpy as np

import matplotlib.pyplot as plt

def from\_ellipse\_to\_line(x, y):

x\_mean = np.mean(x)

y\_mean = np.mean(y)

x\_centered = x - x\_mean

y\_centered = y - y\_mean

return x\_centered\*\*2 , y\_centered \*\*2

# Parameters for the ellipse

cx, cy = -10, 10 # center

rx, ry = 5, 5 # radius

size = 1000

# Generate points on the ellipse

t = np.linspace(0, 2 \* np.pi, size)

x = cx + rx \* np.cos(t)

y = cy + ry \* np.sin(t) + np.random.normal(0, 0.2, size)

# Transform the points from ellipse to line

x\_transformed, y\_transformed = from\_ellipse\_to\_line(x, y)

# Plot the transformed points

plt.scatter(x\_transformed, y\_transformed, s=1)

plt.grid()

plt.show()