

Exam 1

1. Question

Given the following information:

$$\text{Banana} + \text{Pineapple} + \text{Banana} = 417$$

$$\text{Orange} + \text{Banana} + \text{Orange} = 266$$

$$\text{Banana} + \text{Pineapple} + \text{Pineapple} = 600$$

Compute:

$$\text{Banana} + \text{Orange} + \text{Pineapple} = ?$$

- a. 433
- b. 565
- c. 600
- d. 261
- e. 542

2. Question

What is the distance between the two points $p = (3, 2)$ and $q = (4, 4)$ in a Cartesian coordinate system?

- a. 1.139
- b. 0.671
- c. 1.732
- d. 2.236
- e. 0.237

3. Question

What is the derivative of $f(x) = x^5 e^{3.2x}$, evaluated at $x = 0.8$?

4. Question

The daily expenses of summer tourists in Vienna are analyzed. A survey with 121 tourists is

conducted. This shows that the tourists spend on average 136.4 EUR. The sample variance s_{n-1}^2 is equal to 148.

Determine a 95% confidence interval for the average daily expenses (in EUR) of a tourist.

- What is the lower confidence bound?
- What is the upper confidence bound?

5. Question

For 58 firms the number of employees X and the amount of expenses for continuing education Y (in EUR) were recorded. The statistical summary of the data set is given by:

	Variable X	Variable Y
Mean	52	240
Variance	149	3259

The correlation between X and Y is equal to 0.75.

Estimate the expected amount of money spent for continuing education by a firm with 53 employees using least squares regression.