Question 1:

| Data | Nominal | Ordinal | Interval | Ratio |
|---|---|---|---|---|
| Labeled | ✓ | ✓ | ✓ | ✓ |
| Meaningful Order | ✗ | ✓ | ✓ | ✓ |
| Measurable Difference | ✗ | ✗ | ✓ | ✓ |
| True Zero Starting Point | ✗ | ✗ | ✗ | ✓ |

Question 10

**Plugging in the Values**

$$P(X = 5) = \frac{e^{-3} \cdot 3^5}{5!}$$

1. Calculate $e^{-3}$:

$$e^{-3} \approx 0.0498$$

2. Calculate $3^5$:

$$3^5 = 243$$

3. Calculate $5!$ (Factorial of 5):

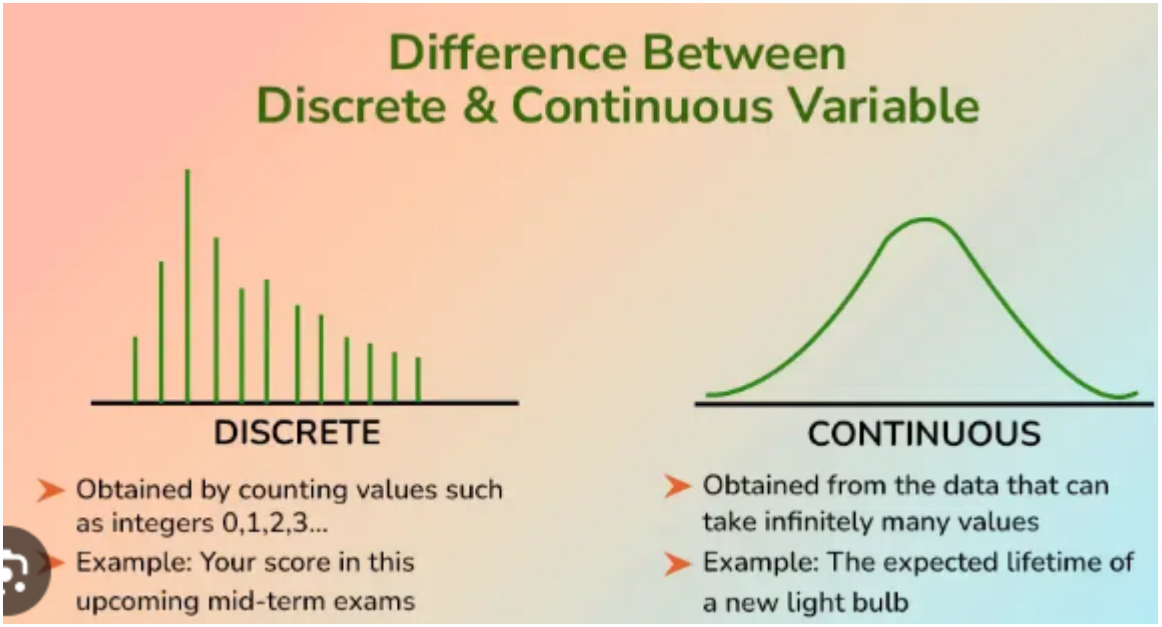
$$5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$$

4. Combine everything:

$$P(X = 5) = \frac{0.0498 \cdot 243}{120} \approx \frac{12.1014}{120} \approx 0.1008$$

Question 11

Question 1:




Question 11

| Feature | Discrete Random Variable | Continuous Random Variable |
|---|---|---|
| **Nature of Values** | Countable, distinct values | Infinite, within a range of values |
| **Examples** | Number of emails received per day | Weight of a person |
| **Representation** | Probability Mass Function (PMF) | Probability Density Function (PDF) |
| **Probability of a Value** | Can assign a non-zero probability to each exact value | Probability of an exact value is 0; only ranges have probabilities |