

CA10

Monday, March 3, 2025

2:51 PM

1. Slope:  $\frac{\Delta y}{\Delta x} = \frac{4 - (-2)}{2 - (-1)} = \frac{6}{3} = \boxed{2}$

2. Mean:  $\frac{10 + 20 + 30 + 40 + 50 + 60 + 70}{7} = \frac{280}{7} = \boxed{40}$

3. log odds:  $e^3 \rightarrow 20.09$   $\frac{20.09}{1 + 20.09} = \boxed{0.95}$

4.  $P(\text{disease}) = 0.001$   $P(\text{Positive}) = 0.05$   $P(\text{Positive} | \text{disease}) = 0.99$

$P(\text{disease} | \text{Positive}) = \frac{0.99 \cdot 0.001}{0.05} = \boxed{0.0198}$

5.  $\frac{\partial f}{\partial x} = 2xy^3 + 3x^2y^2$

$f(x, y) = x^2y^3 + x^3y^2$

$\frac{\partial f}{\partial y} = 3x^2y^2 + 2x^3y$