1.) (2 pts each) True/False—Circle your choice. Circle T only if the statement is always true. [No explanation necessary.]

- (a) \( \ln(AB) = \ln(A) \ln(B) \) [\( T \) \( \times \) \( F \)]
- (b) \( \ln e^{2t} = 2t - 1 \) [\( T \) \( \times \) \( F \)]
- (c) \( \sin(3a) = 3\sin(a) \) [\( T \) \( \times \) \( F \)]
- (d) As \( x \to \infty \), \( x^{0.1} \) dominates \( 1.001^x \) [\( T \) \( \times \) \( F \)]
- (e) \( \log(10A) = \log A + 1 \) (\( A > 0 \)) [\( T \) \( \times \) \( F \)]
- (f) A 5th degree polynomial must have at least one real zero. [\( T \) \( \times \) \( F \)]

2.) (5 pts—No explanation necessary.) The graphs of three functions are given in the figure below.

\[ y = q^x \quad y = ab^x \quad y = cd^x \]

Complete each of the statements below by using the symbols \( >, <, \) or \( = \).

\[ a \leq q \quad a = c \quad b > d \quad d \geq v \]

Which, if any, of the parameters \( a, b, c, d, q, v \) are greater than zero? \( \text{all} \)