Name:_____ **TA:_____**

Foundations of Math 10 LG 1 Ver B **/20**

Calculators are **NOT** permitted on this test.

Expectation #1: Determine the square root and cube root of perfect squares and cubes.

1. Evaluate the following. (1 mark each)

   a) 3^2 b) $\frac{1}{2^3}$

   c) -2^0 d) $(-2)^4$

2. Give an example of a number that is a perfect cube but not a perfect square. (1 mark)

3. Determine the following roots. (1 mark each)

   a) $\sqrt{25}$ b) $\sqrt[3]{8}$

4. Farmer Joe fences a square field with an area of 81 m^2. What is the length of one side of the fence? (1 mark)

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Expectation #2: Apply the exponent laws to simplify expressions with integral exponents.

5. Simplify each expression. State your answer using positive exponents. (1 mark each)

   a) $3x^{-3}y^{5}$ b) $\frac{x^{-2}}{x^{3}}$

6. Simplify each expression. State your answer using positive exponents. (2 marks each)

   a) $[2t^{-4}]^{2}$ b) $[(xy^{2})^{-2}]^{-3}$

7. Evaluate. (2 marks each)

   a) $\left(\frac{4^{2}}{4}\right)^{2}$ b) $[(2)(2)^{2}]^{-1}$

8. The population of flies is currently 10 and is tripling every day. The relationship can be modeled by the equation $N = 10(3)^{t}$ where *N* is the number of flies and *t* is the time in days. How many flies will there be after 2 days? (2 marks)

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