Math 10 Foundations LG 1 Quiz A Answer Sheet

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

1. Evaluate the following. (1 mark each)

a) 2^2

$= 2 \times 2$
$= 4$

b) $\frac{2}{3^2}$ $= \frac{2}{3 \times 3} = \frac{2}{9}$

c) -2^4

$= -2 \times 2 \times 2 \times 2$
$= -16$

d) $(-2)^3$ $= (-2) \times (-2) \times (-2)$
$= -8$

* NOTICE HOW THE BRACKETS MAKE A DIFFERENCE BETWEEN c) AND d)

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

SOME EXAMPLES WOULD BE 4, 9, 16, 25, 36, 49

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

a) $\sqrt{16}$

$= 4$

b) $\sqrt[3]{27}$

$= 3$

4. Farmer Joe fences a square field with an area of 64 m^2. What is the length of one side of the fence? (1 mark)

$64 m^2$

$\sqrt{64} = 8$

So LENGTH = 8 m

*MAKE SURE YOU HAVE UNITS OF m.

/8

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) $3x^2y^{-1}$

$= \frac{3x^2}{y}$

b) $\frac{x^2}{x^5}$ $= x^{2-5} = x^{-3} = \frac{1}{x^3}$

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

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

$= [t^1]^2$

$= t^2$

b) $\left(\frac{2d^3}{d^{-3}}\right)^3 = \left(2d^{3-(-3)}\right)^3$

$= (2d^6)^3$

$= 8d^{18}$

7. Evaluate. (2 marks each)

a) $\left(\frac{4^2}{2^4}\right)^6$

$= \left(\frac{16}{16}\right)^6$

$= (1)^6$

$= 1$

b) $\left(\frac{2}{2^3}\right)^{-1} = \left(\frac{2^1}{2^3}\right)^{-1}$

$= \left(2^{1-3}\right)^{-1}$

$= (2^{-2})^{-1}$

$= 2^2 = 4$

8. The population of flies is currently 10 and is doubling every day. The relationship can be modeled by the equation $N = 10(2)^t$ where *N* is the number of flies and *t* is the time in days. How many flies will there be after 4 days? (2 marks)

$N = 10(2)^4$

$= 10(16)$

$= 160$

THERE WILL BE 160 FLIES.

* UNITS ARE IMPORTANT!

/12