

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)

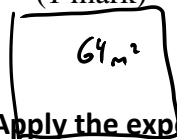
SOME EXAMPLES WOULD BE 4, 9, 16, 25, 36, 49

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)



$\sqrt{64} = 8$

* MAKE SURE YOU HAVE UNITS OF m.

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

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)

$$\begin{aligned} \text{a) } [(t)^4(t)^{-3}]^2 \\ &= [t^1]^2 \\ &= t^2 \end{aligned}$$

$$\begin{aligned} \text{b) } \left(\frac{2d^3}{d^{-3}}\right)^3 &= \left(2d^{3-(-3)}\right)^3 \\ &= (2d^6)^3 \\ &= 8d^{18} \end{aligned}$$

7. Evaluate. (2 marks each)

$$\begin{aligned} \text{a) } \left(\frac{4^2}{2^4}\right)^6 \\ &= \left(\frac{16}{16}\right)^6 \\ &= (1)^6 \\ &= 1 \end{aligned}$$

$$\begin{aligned} \text{b) } \left(\frac{2}{2^3}\right)^{-1} &= \left(\frac{2^1}{2^3}\right)^{-1} \\ &= (2^{1-3})^{-1} \\ &= (2^{-2})^{-1} \\ &= 2^2 = 4 \end{aligned}$$

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)

$$\begin{aligned} N &= 10(2)^4 \\ &= 10(16) \\ &= 160 \end{aligned}$$

THERE WILL BE 160 FLIES.

* UNITS ARE IMPORTANT!