Math 10 Foundations LG 2 Quiz B Answer Sheet

Instructions

1. Mark your quiz.
2. Complete the "How Did I Do?" sheet
3. Return this sheet to Mrs. Craig.
4. Bring your marked quiz and the "How Did I Do?" page to your teacher for a quick interview.

Expectation #1: Apply the exponent laws to simplify expressions with rational exponents.

1. Simplify the following. Leave your answers with positive exponents. (1 mark each)

a) $(x)(x^6)$

$= x^{1+6}$

$= x^7$

b) $(x^2)^7$

$= x^{2\times 7}$

$= x^{14}$

c) $\frac{(m^{-2})^0}{(m^3)^{-3}}$

$= \frac{m^0}{m^{-9}}$

$= \frac{1}{m^{-9}} = m^9$

d) $(8x^6)^{\frac{1}{3}}(x^{-3})$

$= (8^{\frac{1}{3}})(x^6)^{\frac{1}{3}}(x^{-3})$

$= 2(x^2)(x^{-3})$

$= 2x^{-1} = \frac{2}{x}$

Expectation #2: Represent and simplify irrational numbers.

2. Evaluate. (1 mark each)

a) $-9^{\frac{1}{2}}$

$= -\sqrt{9}$

$= -3$

b) $(4^2)\left(\frac{2}{3}\right)^{-2}$

$= (16)\left(\frac{3}{2}\right)^2$

$= (16)\left(\frac{9}{4}\right)$

$= (4)(9)$

$= 36$

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Expectation #3: Convert between powers with rational exponents and radicals.

3. Express $\sqrt[4]{22^7}$ as a power. (1 mark)

$= 22^{\frac{7}{4}}$

Expectation #4: Convert between mixed radicals and entire radicals.

4. Express each mixed radical as an entire radical. (1 mark each)

a) $3\sqrt{4}$

$= \sqrt{4 \times 3 \times 3}$

$= \sqrt{36}$

b) $2\sqrt[3]{5}$

$= \sqrt[3]{5 \times 2 \times 2 \times 2}$

$= \sqrt[3]{40}$

5. Express each entire radical as an equivalent mixed radical (1 mark each)

a) $\sqrt{44} = \sqrt{2 \times 2 \times 11}$

$= 2\sqrt{11}$

44
2 22
2 11

b) $\sqrt[3]{54} = \sqrt[3]{2 \times 3 \times 3 \times 3}$

$= 3\sqrt[3]{2}$

54
2 27
3 9
3 3

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Name:_____ **TA:**_____

Foundations of Math 10 LG 2 Ver B PART B – CALCULATOR

****CALCULUATORS ARE PERMITTED ON THIS PART OF THE TEST**

Expectation #2: Represent and simplify irrational numbers.

6. Evaluate to 4 decimal places. (1 mark each)

a) $(3^{-1.2})^3$

$= 0.0192$

b) $\left(\frac{\frac{2^3}{5}}{4}\right)^{\frac{1}{2}}$

$= 0.2722$

c) $\sqrt[5]{23.4}$ $= 1.8796$

7. Order the set of numbers from least to greatest and then circle the irrational numbers (2 marks).

$4\frac{2}{5}$ $2\sqrt[3]{8}$ $4.\overline{4}$ $2\sqrt{4.4}$

$= 4.4$ $= 4$ ≈ 4.44 ≈ 4.20

$2\sqrt[3]{8}$, (circled) $2\sqrt{4.4}$, $4\frac{2}{5}$, $4.\overline{4}$

THE CIRCLED NUMBER IS IRRATIONAL.

8. The number of ants in a colony doubles every 10 days. There currently are 25 ants in the colony. This situation can be modeled by the formula $P = 25(2)^{0.1d}$ where P represents the number of ants and d represents the number of days. How many ants will there be after 14 days? (2 marks)

$P = 25(2)^{0.1(14)}$

≈ 66

THERE WILL BE 66 ANTS AFTER 14 DAYS.

* UNITS ARE IMPORTANT!!

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9. The elevation of a balloon is given by the formula $h = 10\sqrt{t}$ where *h* is the height above the ground in metres and *t* is time in seconds. How much higher is the balloon at 80 seconds than it is at 25 seconds? (2 marks)

25s

$h = 10\sqrt{25}$

$= 50_m$

80s

$h = 10\sqrt{80}$

$= 89.44_m$

$89.44 - 50 = 39.44_m$

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THE BALLOON IS 39.44_m HIGHER.

*REMEMBER YOUR UNITS!!