Level 4: Irrational Numbers and Integer Exponents Posttest Answer Key

Question 1:

Between which two integers is the value of $3 \times \sqrt{29}$?

between [16] and [17]

Question 2:

What is the value of $7^3 \times 3^3$ written as a power of 21?

21^3

Question 3:

If $x = 5^3$ and $y = 5^{-3}$, express y in terms of x with a negative exponent.

$y =$ [x^{-1}]

Question 4:

Solve: $x = \sqrt[3]{64}$

$x =$ [4]

Question 5:

Which number **cannot** be written in the form $\frac{p}{q}$, where p and q are integers?

a. $\sqrt{2}$

b. $\sqrt{9}$

c. -4

d. 1.7

Question 6:

A ship had 5×10^7 pounds of cargo. It unloaded 3,000,000 pounds of the cargo at a port.

How many pounds of cargo were left in the ship?

a. 2×10^6

b. 4.7×10^6

c. 2×10^7

d. 4.7×10^7

Question 7:

A newspaper reported that in one year the United States imported goods from China worth a total of 385 billion dollars.

What is 385 billion written in scientific notation?

a. 3.85×10^8

b. 3.85×10^9

c. 3.85×10^{10}

d. 3.85×10^{11}

Question 8:

Which of the following is a rational number?

a. $\sqrt{15}$

b. $-\frac{3}{4}$

c. π

d. $-\sqrt{3}$

Question 9:

Which of the following represents an irrational number?

a. $\sqrt{16}$

b. π

c. $5.\overline{6}$

d. $\frac{22}{7}$

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Question 10:

The side length of a square, s, is related to its area, A, by the formula below.

$$s = \sqrt{A}$$

If $A = 121$, what value of s makes the formula true? Write your answer without using a square root symbol.

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Question 11:

What is the value of $\frac{5}{6}$ to the nearest thousandth?

0.833

Question 12:

Look at the three numbers below.

$9, \sqrt{80}, \pi^2$

Arrange the numbers in order from least to greatest.

9	
$\sqrt{80}$	$\sqrt{80}$
	9
π^2	π^2

Question 13:

Look at the inequality below.

$\sqrt{x} < 4$

What is the **greatest** integer that is a solution to the inequality?

15

Question 14:

Write $\sqrt{3}$ as a decimal rounded to the nearest tenth.

1.7

Question 15:

The values of x and y are shown.

$x = 4^2$

$y = 4^{-2}$

Which equation must be true?

a. $x = \frac{1}{y}$

b. $x = -y$

c. $x - y = -1$

d. $x + y = 0$

Question 16:

Ian has a jar full of pennies. One penny weighs about 5×10^{-3} pounds. The pennies in Ian's jar weigh a total of 10 pounds.

About how many pennies are in Ian's jar?

a. 200

b. 500

c. 2,000

d. 5,000

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