Unit 2 Test: Study Guide

1. If $(-3)^5 \times (-3)^2 = (-3)^x$, what is the value of *x*?

2. What is equivalent to 6^{-2}?

3. What is the simplified exponential form of the expression below?

$$(2^3)^4$$

4. What exponential value is equivalent to $\frac{2^6}{2^3}$?

5. What is equivalent to 7^0 ?

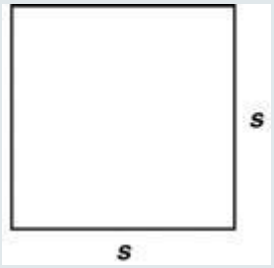
6. What is the value of $\sqrt{25} + \sqrt{16}$?

7. In Mr. DeLeon's math class, players in any math game must represent their scores with a math expression. Arthur's game score is represented by this expression.

$$\frac{\sqrt{144}}{3}$$

What is Arthur's score?

8. The area of this square is 144 square inches.



What is the length of each side, *s*, of the square?

9. Which value is equivalent to $\sqrt[3]{64}$?

10 John recently received a good grade on his math test. He decided to report his score to his mother using some of the math he just learned. He lost the following points:

$$\sqrt[3]{27} \times \sqrt[3]{125}$$

How many points did John lose on his most recent math test?

11 Convert 4.65×10^5 to standard notation.

12 A scientist found an organism that measures 0.000750 meters in length. What is this length written in scientific notation?

13 In 1996, the heaviest train in the world was a train in Australia that had 540 iron-ore cars and had a mass of 72,200,000 kilograms. Which of the following shows this mass written in scientific notation?

14 Toby read in a science book that the diameter of a human hair is about 0.0076×10^{-2} meters. Which of the following shows this diameter expressed in scientific notation?

15 Convert 2.45×10^{-4} into standard notation.

16 Solve the following problem (place your answer in scientific notation):

$$(5.1 \times 10^4)(2.5 \times 10^3)$$

17. Solve: $(7.5 \times 10^3) \div (2.5 \times 10^5)$

Your answer must be in scientific notation.

18. A ship weighs 1.2×10^4 tons when it is empty. The ship's cargo, fuel, and crew weigh a total of 4.6×10^3 tons. What is the total weight of the ship with the cargo, fuel, and crew onboard?

19 The distance from Tallahassee, Florida to London, England is 4.368×10^3 miles. The distance from London, England to Tokyo, Japan is 6.424×10^3 miles. If you were to fly from Tallahassee to London and then to Tokyo, how many miles would you have traveled?

20 The dimensions of the base of a rectangular office building are 1.5×10^2 feet by 1.35×10^3 feet. What is the perimeter of the base of this building, in feet?

21 Which equations have only one solution?

A. $3k - 20 = 12$

B. $8 + 15g = 15 + 8g$

C. $12x + 6 = 3(4x + 2)$

D. $9p + 7 = 6p - 2 + 3p$

22 Which statements regarding the number of solutions for the linear equation shown below are false?

$4(3x + 8) - 9 = 2(6x - 8) + 39$

A. There are infinitely many solutions.

B. There are exactly two solutions.

C. There is exactly one solution.

D. There is no solution.

23 What is the value of *x* in the following equation?

$3x + 36 = 99$

24 What value of *y* makes this equation true?

$-3(6 - 4y) = 4y + 2$

25 What value of *x* makes this equation true?

$7x = 2x - 20$

26 What value of *d* makes the equation true?

$\frac{2}{3}d + 6 = 66$

27 Which numbers in the list are rational numbers?

$\frac{9}{4}, -13^3, \sqrt{15}, 1.52$

28 Terri is playing a math card game and has dealt each player four math cards.

Lisa: $2, \sqrt{2}, -5, \frac{1}{2}$

Ben: $0.\overline{435}, 0.5, \sqrt{25}, 0$

Kari: $\pi, 2, 6, -2$

Terri: $\sqrt{200}, \pi, \sqrt{50}, 1.43256744376665\ldots$

Which players have hands containing irrational numbers?

29 Write a fraction equivalent to $.3$?

30 Which lists of numbers contains all rational number?

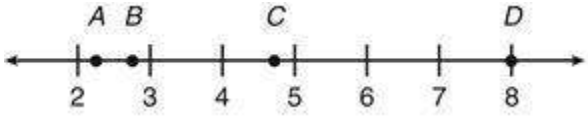
A. $\frac{1}{5}, 0, \sqrt{9}$

B. $\frac{5}{8}, 2.5, \sqrt{10}$

C. $\frac{3}{17}, 0.40, \sqrt{64}$

D. $\frac{1}{2}, 1.529783, \sqrt{36}$

31 $\sqrt[3]{115}$ **is closest to which point on the number line?**



32 The value of $\sqrt{38}$ **is between which two numbers?**

33 A square sign has an area of 123 square feet. About how many feet long is each side? (to the nearest foot)

34 Which point most closely corresponds to $\sqrt{8}$ **on the number line below?**