# Q1 Cumulative Review

Student _____

Date _____

**1.** Which expression is equivalent to $(2^6 \cdot 2^2)^2$?

    **A.** $2^{16}$

    **B.** $2^{24}$

    **C.** $4^{16}$

    **D.** $4^{64}$

**2.** Which of the following statements is correct?

    **A.** $3^{-1} = 3^{-3} \cdot 3^2$

    **B.** $3^{-3} = 3^{-1} \cdot 3^3$

    **C.** $3^4 = 3^{-2} \cdot 3^{-2}$

    **D.** $3^6 = 3^{-2} \cdot 3^2 \cdot 3^{-2}$

**3.** Which numerical expression is equivalent to $2^{-2} \times 2^{-3}$?

    **A.** $\dfrac{1}{64}$

    **B.** $\dfrac{1}{32}$

    **C.** $32$

    **D.** $64$

**4.** Which value is equivalent to $\sqrt{5^2}$ ?

    **A.** $2.5$

    **B.** $\sqrt{10}$

    **C.** $5$

    **D.** $25$

**5.** Which of the following is equivalent to $\sqrt{196}$ ?

    **A.** $\sqrt{14}$

    **B.** $7\sqrt{2}$

    **C.** $14$

    **D.** $98$

**6.** What value of $x$ makes the equation true?

$$x^3 = 27$$

    **A.** $2$

    **B.** $3$

    **C.** $9$

    **D.** $24$

**7.** Mike is about 1.6 meters tall. A rock is about $2.3 \times 10^{-3}$ meters tall. *About* how many times shorter is the rock compared to Mike?

    **A.** 1,400

    **B.** 700

    **C.** 140

    **D.** 70

**8.** The average distance from Jupiter to the Sun is about $7.784 \times 10^8$ km. How should this distance be written in standard form?

    **A.** 778,400,000,000 km

    **B.** 7,784,000,000 km

    **C.** 778,400,000 km

    **D.** 77,840,000 km

9. The population of the United States is approximately $3 \times 10^8$ people. The population of Germany is approximately $8 \times 10^7$ people. Which statement about the populations of these countries is true?

  A. The population of Germany is almost 3 times the population of the United States.

  B. The population of Germany is almost 4 times the population of the United States.

  C. The population of the United States is almost 3 times the population of Germany.

  D. The population of the United States is almost 4 times the population of Germany.

10. What is $7.31 \times 10^{-2}$ in standard form?

11. Which of the following is equivalent to 0.00000073?

  A. $7.3 \times 10^7$

  B. $7.3 \times 10^6$

  C. $7.3 \times 10^{-6}$

  D. $7.3 \times 10^{-7}$

12. Which equation has no solution?

  A. $3k - 20 = 12$

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

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

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

13. Which equation has an infinite number of solutions?

  A. $7(1 - 4x) + 3x = 7$

  B. $5(2 - 4x) + 4x = 10$

  C. $8(2 - 2x) + 16x = 9$

  D. $6(3 - 2x) + 12x = 18$

14. A student concluded that $8x - 12 = 4\left(\frac{1}{2}x - 6\right)$ has infinitely many solutions. Which statement best describes the student's conclusion?

  A. The conclusion is incorrect because the equation has no solution.

  B. The conclusion is incorrect because there is exactly one solution to the equation.

  C. The conclusion is correct because there are exactly two solutions to the equation.

  D. The conclusion is correct because when simplified, both sides of the equation are equivalent.

15. What is the value of $x$ in the equation $3(x + 4) + 3 = 9$?

16. What is the solution to the equation $\frac{1}{2}(x + 5) = 10$ ?

17. What is the value of $w$ in the equation $6w + 36 = 2w$?

**18.** Which fraction is equivalent to $0.0\overline{18}$?

A. $\dfrac{1}{55}$

B. $\dfrac{2}{111}$

C. $\dfrac{9}{500}$

D. $\dfrac{17}{900}$

**19.** Which set of numbers contains only integers?

A. $\left\{\dfrac{^-1}{4}, 0, {}^-2\right\}$

B. $\left\{\sqrt{7}, \dfrac{1}{3}, \dfrac{^-2}{5}\right\}$

C. $\{{}^-3, 0, 2\}$

**20.** In which set(s) of numbers does $\pi$ belong?

A. irrational only

B. rational only

C. rational and integer

D. rational, integer, and natural

**21.** Which statement about the location of $\sqrt{7}$ on a number line is true?

A. It is located at the number 7 on the number line.

B. It is located at the number 3.5 on the number line.

C. It is located between the numbers 2 and 3 on the number line.

D. It is located between the numbers 4 and 9 on the number line.

**22.** The formula used to determine the speed of a car before the brakes are applied is $s = \sqrt{20d}$, where *s* equals the speed of the car in miles per hour, and *d* equals the braking distance. The braking distance for a car was 60 feet. What was the *approximate* speed of the car before the brakes were applied?

A. 15 mph

B. 30 mph

C. 35 mph

D. 40 mph

**23.** A square has an area of 29 square inches. Which choice below is the best estimate for the side length of the square?

A. More than 5 inches but less than 6 inches.

B. More than 7 inches but less than 8 inches.

C. More than 14 inches but less than 15 inches.

D. More than 25 inches but less than 36 inches.