Cumulative Review

Chapters 1–7

Multiple Choice

For Exercises 1–10, choose the correct letter.

1. Which values of a and b are a solution to the inequality $|5 - 2a| - b \le 4$?

   A. $a = 6, b = -2$ **B.** $a = -4, b = 3$ **C.** $a = 3, b = -1$ **D.** $a = -3, b = 5$

2. What is the value of the function $y = -x^2 + 6x - 5$ when $x = 4$?

   F. 3 **G.** 35 **H.** 5 **I.** -3

3. Which equation represents a line with slope $-\dfrac{1}{2}$ that passes through $(-3, 4)$?

   A. $y = -\dfrac{1}{2}x + 4$ **B.** $4y + 3x = -2$ **C.** $2y = x + 8$ **D.** $2y + x = 5$

4. Which value of x is a solution of both $2(x - 8) < 5$ and $-4(2 - x) \ge 1$?

   F. 3 **G.** -4 **H.** 0 **I.** 2

5. What is the y-intercept of the line with equation $2x + 4y = 6$?

   A. -0.5 **B.** 1.5 **C.** 4 **D.** 6

6. Which formula could be used to find the terms of the sequence
   $-6.25, \ 3.125, \ -1.5625, \ 0.78125, \ldots$?

   F. $a_n = -0.5 \cdot (-6.25)^{n-1}$ **H.** $a_n = -6.25 \cdot (-0.5)^{n-1}$

   G. $a_1 = -6.25; a_n = a_{n-1} \cdot 0.5$ **I.** $a_1 = 0.78125; a_n = a_{n-1} \cdot (-0.5)$

7. Which expression has the greatest value?

   A. $|1.5 - 3|$ **B.** $|-1 + 2|$ **C.** $-|-8|$ **D.** $|-1 - 2|$

8. To which subset of the real numbers does $\sqrt{\dfrac{1}{16}}$ belong?

   F. rational numbers **H.** natural numbers

   G. integers **I.** irrational numbers

9. What is the simplified form of $\dfrac{x^{\frac{1}{2}}y^{-3}z^3}{x^{\frac{5}{2}}y^2z^4}$?

   A. x^2yz **B.** $\dfrac{1}{x^2y^5z}$ **C.** $\dfrac{x^2y^5}{z^7}$ **D.** $x^8y^6z^{12}$

10. A triangle with base 6 cm and height 8 cm is similar to a triangle with base
   21 cm. What is the height of the second triangle?

   F. 23 cm **G.** 25 cm **H.** 28 cm **I.** 30 cm

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Cumulative Review (continued)

Chapters 1–7

11. Simplify each expression.

    a. 2.02^0

    b. 2.02^1

12. Write $\sqrt[3]{ab^3c^2} - \sqrt[3]{c^3b}$ in exponential form. Simplify if possible.

13. Order the expressions from smallest to largest.

$$\left(\frac{1}{8}\right)^{-2}, 7^{-1}, 7^2, 8^0, 9^{-1}, 9^1, 9^2$$

Find each answer.

14. Simplify $(0.25 \times 10^3)(20 \times 10^2)$.

15. Suppose y varies directly with x, and $y = 10$ when $x = 2.5$. What direct variation equation relates x and y? What is the value of y when $x = 10$?

16. An entry level position pays $8 per hour. A 4% raise is given at the end of each year of employment. What would the pay be after 3 years?

17. Which is greater, the amount in a $1000 account that pays 6% interest compounded semiannually for 4 years or the amount in a $1000 account that pays 6.25% annually for 4 years?

18. Open-Ended Write and solve a problem involving compound interest.

19. Solve the following system by elimination.

$3y - 1.6x = -15.4$

$8y - 2x = -32$

20. The first equation in a system of two equations is $2x - 3y = 9$. The graph of the second equation does not intersect the first. Write a possible second equation for the system. Justify your response.

21. Write a function rule to describe the amount of money you have left from a weekly paycheck if you earn $12 per hour, you have $15.50 deducted per week for medical insurance, and you make a weekly car loan payment of $50.