Working with the Number System

Progress Assessment

Circle the letter of the best answer.

1. Which expression is equivalent to $5^{\frac{7}{13}}$?

   a. $\sqrt{5^{13}}$

   b. $\sqrt[7]{5^{13}}$

   c. $\sqrt[13]{5}$

   d. $\sqrt[13]{5^7}$

2. What is the value of $\sqrt[3]{27^4}$?

   a. 3

   b. 9

   c. 27

   d. 81

3. What is the approximate value of $6^{\frac{7}{2}}$?

   a. 1.67

   b. 2.45

   c. 529.09

   d. 279,936

4. Which product is irrational?

   a. $0.21 \bullet \sqrt[4]{4}$

   b. $\frac{3}{11} \bullet 100^{\frac{5}{2}}$

   c. $\sqrt[3]{512^2} \bullet 13$

   d. $121^{\frac{9}{2}} \bullet 3.3$

5. Let $x^{\frac{3}{5}} = 8$. What is the value of x?

   a. 1.6

   b. 2

   c. 32

   d. 64

6. Which expression is equivalent to $\sqrt[w]{g^{14}}$?

   a. $g^{\frac{14}{w}}$

   b. $14^{\frac{g}{w}}$

   c. $g^{\frac{w}{14}}$

   d. $g^{\frac{1}{w}}$

continued

7. What is the value of $1024^{\frac{4}{5}}$?

   a. 4
   c. 256
   b. 16
   d. 1,024

8. What is the approximate value of $\sqrt[9]{7^{10}}$?

   a. 5.76
   c. 23.08
   b. 8.69
   d. 16,807.00

9. Which sum is rational?

   a. $\sqrt{10}+15$
   c. $8^3+8^{\frac{1}{2}}$
   b. $6^{\frac{4}{2}}+\sqrt[3]{1000}$
   d. $\sqrt{144^3}+4^{\frac{1}{4}}$

10. Let $x^3=220$. What is the approximate value of x?

    a. 6.04
    c. 14.83
    b. 7.00
    d. 73.33

Read the scenario and use the information in it to answer the questions that follow.

11. A town counts its population every 10 years, and uses the change in the population to determine the town's growth rate. The equation $y = 52{,}000(1.03)^d$ can be used to estimate the town's population d decades after the year 2000.

    a. What will be the approximate population in 2020?

    b. What will be the approximate population in 2035?