Practice Test -- Radicals

1. Which of the following is a square root of 196?
   A. 15
   B. 3
   C. 14
   D. 98

2. Between what two consecutive whole numbers does $\sqrt{20}$ lie?

   A. 4 and 5

   B. 6 and 7

   C. 7 and 8

3. Add. $9\sqrt{7} + 13\sqrt{7}$
   A. 22
   B. $-4\sqrt{14}$
   C. $22\sqrt{7}$
   D. $-4\sqrt{7}$

4. Find the square root. $-\sqrt{100}$
   A. 10
   B. -50
   C. -10

5. Evaluate $\sqrt{45} + \sqrt{5}$
   A. $-\sqrt{5}$
   B. $4\sqrt{5}$
   C. $-4\sqrt{40}$
   D. already simplified

6. Find the perimeter of a triangle whose side lengths are 4 cm, $8\sqrt{5}$ cm, and $\sqrt{125}$ cm. Give the answer as a radical expression in simplest form.
   A. $(4 + 8\sqrt{5} + \sqrt{125})$ cm
   B. $(4 + 13\sqrt{5})$ cm
   C. $17\sqrt{5}$ cm

7. Simplify the expression
   $\sqrt{75d} + 5\sqrt{12d} - 3\sqrt{27d}$.
   A. $12\sqrt{3d}$
   B. $108d$
   C. $6\sqrt{3d}$

8. Multiply. Write the product in simplest form.

   $\sqrt{9b} \sqrt{21b}$
   A. $\left(9b\sqrt{21} \right)$

   B. $\left(3b\sqrt{21} \right)$

   C. $\left(b\sqrt{189} \right)$

9. The area of a square garden is 148 square feet. Estimate the side length of the garden.
   A. 15 ft
   B. 12 ft
   C. 14 ft

10. Simplify $\sqrt{\dfrac{160}{49}}$.

    A. $\dfrac{10}{7}$

    B. $\dfrac{4\sqrt{10}}{7}$

    C. $\dfrac{10\sqrt{4}}{7}$

11. Between what two consecutive whole numbers does $\sqrt{240}$ lie?

    A. 14 and 15

    B. 239 and 241

    C. 15 and 16

12. Multiply. Write the product in simplest form.
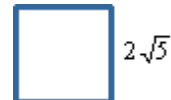
    $\sqrt{5}\left(\sqrt{4} + \sqrt{5} \right)$
    A. $3\sqrt{5}$
    B. $2\sqrt{5} + 5$
    C. $10 + 5\sqrt{5}$

13. Simplify the quotient $\dfrac{\sqrt{13}}{\sqrt{3}}$.

   A. $\dfrac{13}{3}$

   B. $\dfrac{13}{\sqrt{39}}$

   C. $\dfrac{\sqrt{39}}{3}$

14. A square stepping stone in Atlanta's Centennial Olympic Park measure $2\sqrt{5}$ feet on a side. Which of the following is TRUE of the area of the square stone?

$2\sqrt{5}$

   A. The area is a perfect square
   B. The area is an irrational number
   C. The area is a rational number
   **D.** The area cannot be determined

15. Simplify the expression $\sqrt{16w^4z^3}$. All variables represent nonnegative numbers.

   A. $4\sqrt{z^2}$

   B. $4w^4z^2\sqrt{z}$

   C. $4w^2z\sqrt{z}$

   D. $4w^2z\sqrt{z^2}$

16. Write all classifications that apply to the real number $\dfrac{\sqrt{100}}{5}$.

   A. real, rational number, terminating decimal, integer, whole number, natural number
   B. real, irrational number, terminating decimal, integer, whole number, natural number
   C. real, irrational number

17. The square below has an area of 36 square feet. What is the perimeter of the square?
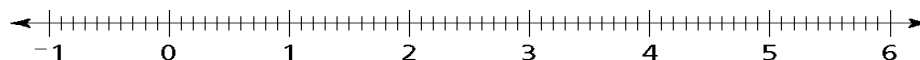
A = 36 sq. ft
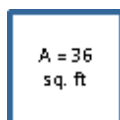
19. Simplify: $-\sqrt{\dfrac{9}{64}}$

20. Simplify: $2\sqrt{5} + 5\sqrt{49} - 2\sqrt{45}$

18. Simplify: $\sqrt{32}$

21. Arrange the following numbers on a number line.

$$\sqrt{3}, \ -\sqrt{0.8}, \ \sqrt{17}, \ \sqrt{36}, \ \sqrt{5}, \ 1.5, \ \sqrt{11}$$

Study Guide -- Radicals
Answer Section

1. C
2. A
3. C
4. C
5. B
6. B
7. C
8. B
9. B
10. B
11. C
12. B
13. C
14. C
15. C
16. A
17. 24 ft
18. $4\sqrt{2}$
19. $-\dfrac{3}{8}$
20. $-4\sqrt{5} + 35$

21.