6th Grade Unit 1: Lesson 2-2

Check Your Understanding (p. 32):

9. (a) 16 (b) 125
   (c) 68.89 (d) 1
   (e) 13 (f) 1
   (g) 100,000 (h) 10,000
   (i) 0 (j) 121
   (k) 2.197 (l) 392
   (m) 243 (n) 4,096

10. (a) $2^2 \times 5$ (b) 2×3^3
    (c) $3^2 \times 5$ (d) $3^2 \times 5^2$
    (e) 2×7^2 (f) 3^6

Lesson 2-2 Practice (p. 32):

11. (a) 81 (b) 343
    (c) 14.44 (d) 1
    (e) 31 (f) 1
    (g) 225 (h) 256

12. (a) $2^3 \times 5$ (b) $3^2 \times 7$
    (c) $2^3 \times 3 \times 5$

13. (a) 10 (b) 100
    (c) 1,000
    (d) Write 1 followed by the number of zeros given by the power.

14. 2^6; 4^3; 8^2

15. (a) Answers may vary. To find the area of a square, you multiply, using the length of one edge as a factor three times. So, the area of a square with side length 5 is $5 \times 5 = 5^2$, which is read "five squared."

    (b) Answers may vary. To find the volume of a cube, you multiply the length of one side by itself three times. So, the volume of a cube with side length 5 is $5 \times 5 \times 5 = 5^3$, which is read "five cubed."

16. 123,454,321; Answers may vary. $11^2 = 121$; $111^2 = 12,321$; $1,111^2 = 1,234,321$. The values show a pattern in the digits that begins with 1, increases by 1s to the number of digits in the original number that was squared, then decreases by 1s back to 1.

Activity 2 Practice Lesson 2-2 (p. 34):

18. (a) 27 (b) 81
    (c) 2.56 (d) 26
    (e) 1 (f) 1
    (g) 0 (h) 10,000,000
    (i) 4.84 (j) 256
    (k) 343 (l) 729

19. (a) 2^5 (b) 2×19
    (c) $5^2 \times 7$ (d) $2^3 \times 3 \times 5$
    (e) $2^3 \times 3^3$ (f) 11×11

20. 3^4; 9^2

21. (a) 5^2

    (b) The base is 5. The base is the number that is used as a factor the number of times indicated by the exponent.

    (c) The exponent is 2. The exponent tells how many times the base is used as a factor.

22. 2^9

23. D

24. B

25. C

26. C

27. (a) $2^7 \times 3^4$

    (b) 9

28. Answers will vary. No, I do not agree. By definition, a prime number has only two factors: 1 and itself.