

1.2

Practice B

For use with pages 10–13

Write the product using an exponent.

1. $43 \cdot 43 \cdot 43 \cdot 43$

2. $100 \cdot 100 \cdot 100$

3. $x \cdot x \cdot x$

4. $p \cdot p \cdot p \cdot p \cdot p$

Evaluate the expression when $n = 8$ and $n = 0.3$.

5. n^2

6. n^3

7. n^4

8. n^6

9. n^8

10. n^7

Write the power in words and as a repeated multiplication. Then evaluate the power.

11. 9^6

12. 16^4

13. 2.5^4

14. 1.4^3

Evaluate the expression when $x = 0.64$ and $y = 15$.

15. x^3

16. x^2

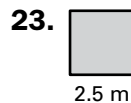
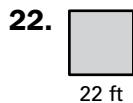
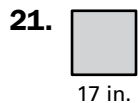
17. x^1

18. y^3

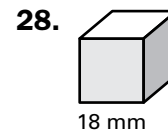
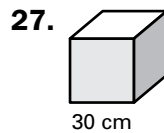
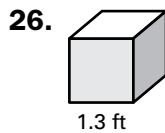
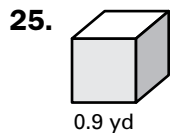
19. y^4

20. y^5

Find the area of the square.



Find the volume of the cube.

29. Compare each number in the top row of the table with the number below it. Describe any pattern you see. Complete the table with a variable expression involving n .

1	2	3	4	...	n
1	16	81	256	...	?

Answers

Lesson 1.1

Practice A

1. 11 2. 16 3. 45 4. 4 5. 17 6. 31
 7. 50 8. 7 9. 1 10. 10 11. 12 12. 3
 13. 7 14. 21 15. 61 16. 17 17. $n + 7$
 18. $n - 11$ 19. $\frac{n}{6}$ 20. $n \cdot 8$ 21. $n - 5$
 22. $\frac{n}{5}$ 23. 56 24. 5s; \$75 25. $v + m$
 26. 250; 300; 350 27. 176

Practice B

1. 4 2. 30 3. 14 4. 25 5. 19 6. 48
 7. 42 8. 6 9. 90 10. 2 11. 17 12. 22
 13. 51 14. 50 15. 160 16. 4 17. $\frac{130}{g}$
 18. $27 + n$ 19. $29 - n$ 20. $n - 6$
 21. $16 + n$ 22. $7n$ 23. $\frac{42}{n}$ 24. $\frac{56}{n}$ 25. $12n$
 26.

Books	Cost (dollars)	Amount left (dollars)
1	7	343
2	14	336
3	21	329
4	28	322

27. $7b$ 28. $350 - 7b$ 29. 50

Practice C

1. 3.5 2. 3.17 3. 7.5 4. 0.3 5. 11
 6. 37.7 7. 85 8. 20 9. 8 10. 3 11. 9.6
 12. 132 13. 72 14. 5 15. 47 16. 0.7
 17. $100x$ 18. $\frac{p}{100}$ 19. $60m$ 20. $4g$
 21. $2bh$; 1600 22. $15g$ 23. \$270; \$195; \$360
 24. $15g + c$ 25. \$333; \$228; \$420
 26. Rose, Sally, Steven

Review for Mastery

1. 21 2. 45 3. 15 4. 4 5. 1460 miles
 6. 56 7. 11 8. 2 9. 3 10. $17 - n$
 11. $\frac{n}{5}$ 12. $n + 10$

Challenge Practice

1. 13.8 2. 132 3. 5.8 4. 76.8 5. 20.4
 6. 27 7. 90 8. 88.2 9. 37.8
 10. *Sample answer:* $pl + cf$, where p is the cost per foot and l is the length in feet of one rope and c is the cost per foot and f is the length in feet of the other rope; \$20.48

Lesson 1.2

Practice A

1. 16^3 2. 18^5 3. $(0.4)^4$ 4. $(1.2)^2$ 5. c^7
 6. n^8 7. 64 8. 256 9. 4096 10. 0.8
 11. 0.4096 12. 0.64 13. 19 squared; $19 \cdot 19 = 361$ 14. 20 cubed; $20 \cdot 20 \cdot 20 = 8000$
 15. 0.7 cubed; $0.7 \cdot 0.7 \cdot 0.7 = 0.343$
 16. 2.4 squared; $2.4 \cdot 2.4 = 5.76$ 17. 3.2 cubed; $3.2 \cdot 3.2 \cdot 3.2 = 32.768$ 18. 0.6 to the fourth power; $0.6 \cdot 0.6 \cdot 0.6 \cdot 0.6 = 0.1296$ 19. 11 to the fourth power; $11 \cdot 11 \cdot 11 \cdot 11 = 14,641$
 20. 9 to the fifth power; $9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 = 59,049$
 21. 10,000 22. 100,000 23. 1,000,000
 24. 0.0144 25. 0.001728 26. 0.12
 27. 196 m^2 28. 6.25 ft^2 29. 9.261 in.^3
 30. 216 cm^3
 31.

Stage	Calls made, as a power	Value of power
1	3^1	3
2	3^2	9
3	3^3	27
4	3^4	81
5	3^5	243

6561 calls have been made after stage 8.

Practice B

1. 43^4 2. 100^3 3. x^3 4. p^5 5. 64; 0.09
 6. 512; 0.027 7. 4096; 0.0081
 8. 262,144; 0.000729
 9. 16,777,216; 0.00006561

Lesson 1.2 *continued*

10. 2,097,152; 0.0002187
 11. 9 to the sixth power; $9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 = 531,441$
 12. 16 to the fourth power; $16 \cdot 16 \cdot 16 \cdot 16 = 65,536$
 13. 2.5 to the fourth power;
 $2.5 \cdot 2.5 \cdot 2.5 \cdot 2.5 = 39.0625$
 14. 1.4 cubed; $1.4 \cdot 1.4 \cdot 1.4 = 2.744$
 15. 0.262144 16. 0.4096 17. 0.64
 18. 3375 19. 50,625 20. 759,375
 21. 289 in.^2 22. 484 ft^2 23. 6.25 m^2
 24. 0.36 cm^2 25. 0.729 yd^3 26. 2.197 ft^3
 27. $27,000 \text{ cm}^3$ 28. 5832 mm^3
 29. The number in the first row to the fourth power, n^4 , is equal to the number in the second row.

Practice C

1. 1.4 to the fifth power;
 $1.4 \cdot 1.4 \cdot 1.4 \cdot 1.4 \cdot 1.4 = 5.37824$
 2. 2.97 cubed; $2.97 \cdot 2.97 \cdot 2.97 = 26.198073$
 3. 33 cubed; $33 \cdot 33 \cdot 33 = 35,937$
 4. 40 to the sixth power;
 $40 \cdot 40 \cdot 40 \cdot 40 \cdot 40 \cdot 40 = 4,096,000,000$
 5. 196; 0.0324 6. 14; 0.18 7. 38,416;
 0.00104976 8. 537,824; 0.00018896
 9. 2744; 0.005832 10. 7,529,536;
 0.000034012224 11. 36 in.^2 12. 64 ft^2
 13. 81 cm^2 14. 3375 mm^3 15. 8 cm^3
 16. 27 in.^3 17. 3 18. 5 19. 6
 20.

Day	Amount received, in cents, as a power	Value of the power
1	3^1	3
2	3^2	9
3	3^3	27
4	3^4	81
5	3^5	243

You receive \$21.87 on the 7th day.

Review for Mastery

1. 21^3 2. d^5 3. $(2.7)^4$ 4. 2 to the sixth power; $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 64$

5. 7 to the fourth power; $7 \cdot 7 \cdot 7 \cdot 7 = 2401$
 6. 0.4 cubed; $(0.4) \cdot (0.4) \cdot (0.4) = 0.064$
 7. 25; 0.09 8. 625; 0.0081 9. 3125; 0.00243
 10. 20.25 in.^2 11. 169 cm^2 12. 512 m^3
 13. 39.304 yd^3

Challenge Practice

1. $3^4 \cdot 4^3$ 2. $a^3 \cdot b^2$ 3. $(x + 2)^4$
 4. $(r + s + t)^2$ 5. 100 6. 81 7. 256
 8. 2^6 ; 4^3 9. 10^6 ; 100^3 ; 1000^2
 10. Both squares have side lengths of 5 inches; one square has a side length of 1 inch and the other square has a side length of 7 inches.

Lesson 1.3

Practice A

1. 31 2. 1 3. 37 4. 23 5. 30 6. 2
 7. 24 8. 9 9. 3 10. 18 11. 21 12. 0
 13. 33 14. 29 15. 16 16. 18 17. 10
 18. 12 19. 507 20. 12 21. 77 22. 84
 23. 2 24. 1.6 25. 3 26. 5
 27. $3(3.99) + 2(3.8) + 1(15.99)$; \$35.56
 28. 91 ft^2

Practice B

1. 27.4 2. 21.6 3. 13 4. 5 5. 56
 6. 1152 7. 65 8. 77.5 9. 2 10. 17
 11. 19 12. 14 13. 2 14. 56.4 15. 4
 16. 1.6 17. 55.2 18. 7840 19. 2812.6
 20. 62 21. 26 in.^2 22. 20 points
 23. $1(0.99) + 16(0.1)$; \$2.59

Practice C

1. 2178 2. 336.5 3. 3 4. 8 5. 4 6. 120
 7. 53.248 8. 376 9. 581.904 10. 112.8
 11. 155.52 12. 3 13. 50 14. 159 15. 39
 16. 4.2 17. 76.7 18. 128 19. 2.357
 20. 24.784 21. \$416 22. 39 m^2

Review for Mastery

1. 87 2. 33 3. 2 4. 84 5. 6 6. 2.3
 7. \$88.95