

Chapter 1

REVIEW EXERCISES

If you need help with any of these Review Exercises, look in the section indicated in brackets.

[1.1] Write the digits for the given period or group in each number.

- | | | | |
|------------------------------|--------------------------------|---------------------------------|---|
| 1. 6573
thousands
ones | 2. 36,215
thousands
ones | 3. 105,724
thousands
ones | 4. 1,768,710,618
billions
millions
thousands
ones |
|------------------------------|--------------------------------|---------------------------------|---|

Rewrite each number in words.

- | | |
|------------|---------------|
| 5. 728 | 6. 15,310 |
| 7. 319,215 | 8. 62,500,005 |

Rewrite each number in digits.

- | | |
|------------------------|--|
| 9. ten thousand, eight | 10. two hundred million, four hundred fifty-five |
|------------------------|--|

[1.2] Add.

- | | | | |
|---|---|---|---|
| 11. $\begin{array}{r} 72 \\ + 38 \\ \hline \end{array}$ | 12. $\begin{array}{r} 54 \\ + 67 \\ \hline \end{array}$ | 13. $\begin{array}{r} 807 \\ 4606 \\ + 51 \\ \hline \end{array}$ | 14. $\begin{array}{r} 8215 \\ 9 \\ + 7433 \\ \hline \end{array}$ |
| 15. $\begin{array}{r} 2130 \\ 453 \\ 8107 \\ + 296 \\ \hline \end{array}$ | 16. $\begin{array}{r} 5684 \\ 218 \\ 2960 \\ + 983 \\ \hline \end{array}$ | 17. $\begin{array}{r} 5732 \\ 11,069 \\ 37 \\ 1595 \\ + 22,169 \\ \hline \end{array}$ | 18. $\begin{array}{r} 3451 \\ 12,286 \\ 43 \\ 1291 \\ + 32,784 \\ \hline \end{array}$ |

[1.3] Subtract.

19.
$$\begin{array}{r} 64 \\ - 28 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 46 \\ - 19 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 375 \\ - 186 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 573 \\ - 389 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 7416 \\ - 567 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 5210 \\ - 883 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 2210 \\ - 1986 \\ \hline \end{array}$$

26.
$$\begin{array}{r} 99,704 \\ - 73,838 \\ \hline \end{array}$$

[1.4] Multiply.

27.
$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

28.
$$\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$$

29. $8(4)$

30. $8(8)$

31. $(5)(9)$

32. $(6)(7)$

33. $7 \cdot 8$

34. $9 \cdot 9$

Work each chain multiplication.

35. $5 \times 4 \times 2$

36. $9 \times 1 \times 5$

37. $4 \times 4 \times 3$

38. $2 \times 2 \times 2$

39. $(6)(0)(8)$

40. $(7)(1)(6)$

41. $6 \cdot 1 \cdot 8$

42. $7 \cdot 7 \cdot 0$

Multiply.

43.
$$\begin{array}{r} 28 \\ \times 3 \\ \hline \end{array}$$

44.
$$\begin{array}{r} 46 \\ \times 8 \\ \hline \end{array}$$

45.
$$\begin{array}{r} 58 \\ \times 9 \\ \hline \end{array}$$

46.
$$\begin{array}{r} 98 \\ \times 1 \\ \hline \end{array}$$

47.
$$\begin{array}{r} 625 \\ \times 8 \\ \hline \end{array}$$

48.
$$\begin{array}{r} 374 \\ \times 8 \\ \hline \end{array}$$

49.
$$\begin{array}{r} 1349 \\ \times 4 \\ \hline \end{array}$$

50.
$$\begin{array}{r} 9163 \\ \times 5 \\ \hline \end{array}$$

51.
$$\begin{array}{r} 7456 \\ \times 2 \\ \hline \end{array}$$

52.
$$\begin{array}{r} 2880 \\ \times 7 \\ \hline \end{array}$$

53.
$$\begin{array}{r} 93,105 \\ \times 5 \\ \hline \end{array}$$

54.
$$\begin{array}{r} 21,873 \\ \times 8 \\ \hline \end{array}$$

55.
$$\begin{array}{r} 35 \\ \times 25 \\ \hline \end{array}$$

56.
$$\begin{array}{r} 74 \\ \times 32 \\ \hline \end{array}$$

57.
$$\begin{array}{r} 98 \\ \times 12 \\ \hline \end{array}$$

58.
$$\begin{array}{r} 68 \\ \times 75 \\ \hline \end{array}$$

59.
$$\begin{array}{r} 472 \\ \times 33 \\ \hline \end{array}$$

60.
$$\begin{array}{r} 392 \\ \times 77 \\ \hline \end{array}$$

61.
$$\begin{array}{r} 4051 \\ \times 219 \\ \hline \end{array}$$

62.
$$\begin{array}{r} 1527 \\ \times 328 \\ \hline \end{array}$$

Find each total cost.

63. 30 scientific calculators at \$12 per calculator

64. 76 subscribers at \$14 per subscription

65. 318 drill bit sets at \$64 per set

66. 114 earplugs at \$6 per earplug

Multiply by using the shortcut for multiples of 10.

67.
$$\begin{array}{r} 280 \\ \times 50 \\ \hline \end{array}$$

68.
$$\begin{array}{r} 340 \\ \times 70 \\ \hline \end{array}$$

69.
$$\begin{array}{r} 517 \\ \times 400 \\ \hline \end{array}$$

70.
$$\begin{array}{r} 637 \\ \times 500 \\ \hline \end{array}$$

71.
$$\begin{array}{r} 16,000 \\ \times 8,000 \\ \hline \end{array}$$

72.
$$\begin{array}{r} 43,000 \\ \times 2,100 \\ \hline \end{array}$$

[1.5] Divide. If the division is not possible, write "undefined."

73. $20 \div 4$

74. $35 \div 5$

75. $42 \div 7$

76. $18 \div 9$

77. $\frac{54}{9}$

78. $\frac{36}{9}$

79. $\frac{49}{7}$

80. $\frac{0}{6}$

81. $\frac{148}{0}$

82. $\frac{0}{23}$

83. $\frac{64}{8}$

84. $\frac{81}{9}$

[1.5–1.6] Divide.

85. $4 \overline{)328}$

86. $3 \overline{)294}$

87. $6 \overline{)26,532}$

88. $76 \overline{)26,752}$

89. $2704 \div 18$

90. $15,525 \div 125$

[1.7] Round as indicated.

91. 817 to the nearest ten

92. 15,208 to the nearest hundred

93. 20,643 to the nearest thousand

94. 67,485 to the nearest ten thousand

Round each number to the nearest ten, nearest hundred, and nearest thousand.

Remember to round from the original number.

	Ten	Hundred	Thousand
95. 3487	_____	_____	_____
96. 20,065	_____	_____	_____
97. 98,201	_____	_____	_____
98. 352,118	_____	_____	_____

[1.8] Find each square root by using the Perfect Squares Table on page 73.

99. $\sqrt{16}$

100. $\sqrt{49}$

101. $\sqrt{144}$

102. $\sqrt{196}$

Identify the exponent and the base, and then simplify each expression.

103. 7^3

104. 3^6

105. 5^3

106. 4^5

Simplify each expression by using the order of operations.

107. $7^2 - 15$

108. $6^2 - 10$

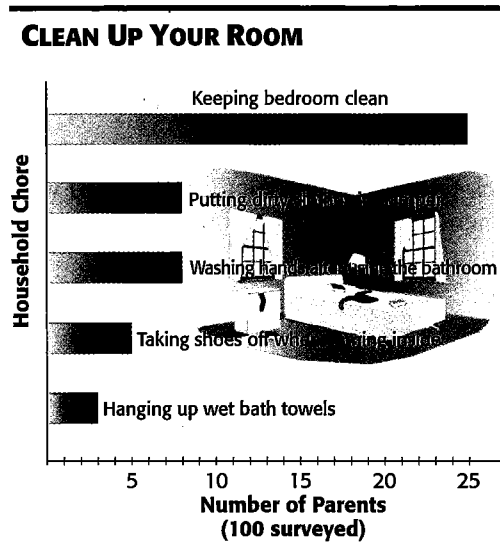
109. $2 \cdot 3^2 \div 2$

110. $9 \div 1 \cdot 2 \cdot 2 \div (11 - 2)$

111. $\sqrt{9} + 2(3)$

112. $6 \cdot \sqrt{16} - 6 \cdot \sqrt{9}$

[1.9] The bar graph shows the number of parents out of 100 surveyed who nag their children about performing certain household chores.



Source: Opinion Research Corporation for the Soap and Detergent Association.

113. How many parents nagged their children about washing hands after using the bathroom?

114. Find the number of parents who nagged their children about taking shoes off when coming inside.

115. Which household chore was nagged about by the greatest number of parents?

116. Which household chore was nagged about by the least number of parents?

≈ [1.10] Solve each application problem. First use front end rounding to estimate the answer. Then find the exact answer.

117. Find the cost of 65 chefs hats at \$18 per hat.

Estimate:

Exact:

119. There are 144 plastic forks in a box. Find the number of plastic forks in 15 boxes.

Estimate:

Exact:

121. It takes 2000 hours of work to build one home. How many hours of work are needed to build 12 homes?

Estimate:

Exact:

123. The Kennedy Space Center charges \$33 for each adult admission and \$23 for each child. Find the total cost to admit a group of 22 adults and 25 children. (Source: Kennedy Space Center.)

Estimate:

Exact:

118. A pulley on an evaporative cooler turns 1400 revolutions per minute. How many revolutions will the pulley turn in 60 minutes?

Estimate:

Exact:

120. A drum contains 6000 brackets. How many brackets are in 30 drums?

Estimate:

Exact:

122. A Japanese bullet train travels 80 miles in 1 hour. Find the number of miles traveled in 5 hours.

Estimate:

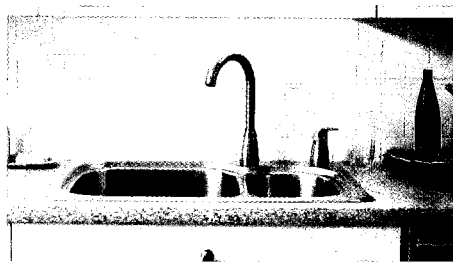
Exact:

124. A newspaper carrier has 62 customers who take the paper daily and 21 customers who take the paper on weekends only. A daily customer pays \$16 per month and a weekend-only customer pays \$7 per month. Find the total monthly collections.

Estimate:

Exact:

125. Home Depot displays and sells stainless steel kitchen sinks that range in price from \$39 to \$388. Find the difference in price between the most and the least expensive sinks. (Source: Home Depot.)



Estimate:

Exact:

127. A food canner uses 1 pound of pork for every 175 cans of pork and beans. How many pounds of pork are needed for 8750 cans?

Estimate:

Exact:

129. Nitrogen sulfate is used in farming to enrich nitrogen-poor soil. If 625 pounds of nitrogen sulfate are spread per acre, how many acres can be spread with 32,500 pounds of nitrogen sulfate?

Estimate:

Exact:

126. A stamping machine produces 986 license plates each hour. How long will it take to produce 32,538 license plates?

Estimate:

Exact:

128. Rachel Leach writes a \$520 check for rent and a \$385 check for her car payment. If she started with \$1924 in her checking account, how much remains in her account.

Estimate:

Exact:



130. Each home in a subdivision requires 180 feet of fencing. Find the number of homes that can be fenced with 5760 feet of fencing material.

Estimate:

Exact:

MIXED REVIEW EXERCISES*

Perform the indicated operations.

131. $4(83)$

132. $7(64)$

133.
$$\begin{array}{r} 309 \\ - 56 \\ \hline \end{array}$$

134.
$$\begin{array}{r} 835 \\ - 247 \\ \hline \end{array}$$

135.
$$\begin{array}{r} 662 \\ + 379 \\ \hline \end{array}$$

136.
$$\begin{array}{r} 789 \\ + 872 \\ \hline \end{array}$$

137.
$$\begin{array}{r} 38,140 \\ - 6,078 \\ \hline \end{array}$$

138.
$$\begin{array}{r} 29,156 \\ - 4,209 \\ \hline \end{array}$$

139. $21 \div 7$

140.
$$\frac{42}{6}$$

141.
$$\begin{array}{r} 7,218 \\ 3 \\ 18 \\ 1,791 \\ 82,623 \\ + 1,982 \\ \hline \end{array}$$

142.
$$\begin{array}{r} 3,812 \\ 5 \\ 22 \\ 1,836 \\ 75,134 \\ + 2,369 \\ \hline \end{array}$$

143.
$$\frac{9}{0}$$

144.
$$\frac{7}{1}$$

145. $27,600 \div 4$

* The order of exercises in this final group does not correspond to the order in which topics occur in the chapter. This random ordering should help you prepare for the chapter test in yet another way.

146. $18,480 \div 8$

147.
$$\begin{array}{r} 8430 \\ \times 128 \\ \hline \end{array}$$

148.
$$\begin{array}{r} 21,702 \\ \times 6 \\ \hline \end{array}$$

149.
$$\begin{array}{r} 34 \overline{)3672} \\ \hline \end{array}$$

150.
$$\begin{array}{r} 68 \overline{)14,076} \\ \hline \end{array}$$

151. Rewrite 376,853 in words.

152. Rewrite 408,610 in words.

153. Round 8749 to the nearest hundred.

154. Round 400,503 to the nearest thousand.

Find each square root.

155. $\sqrt{64}$

156. $\sqrt{81}$

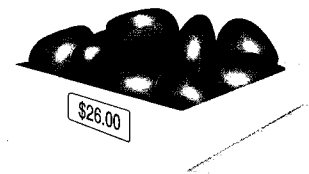
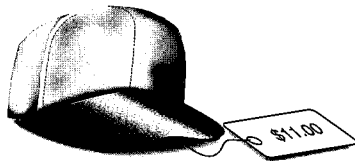
Find each total cost.

157. 308 pairs of knee guards at \$18 per pair

158. 84 dishwashers at \$370 per dishwasher

159. 208 baseball hats at \$11 per hat

160. 607 boxes of avocados at \$26 per box

*Solve each application problem.*

161. There are 52 playing cards in a deck. How many cards are there in nine decks?

162. Your college bookstore receives textbooks packed 20 books per carton. How many textbooks are received in a delivery of 180 cartons?


163. Push-type gasoline-powered lawn mowers cost \$100 less than self-propelled mowers that you walk behind. If a self-propelled mower costs \$380, find the cost of a push-type mower.

164. The Country Day School wants to raise \$218,450 to construct and equip a computer lab. If \$103,815 has already been raised, how much more is needed?

American River Raft Rentals lists the following daily raft rental fees. Notice that there is an additional \$2 launch fee payable to the park system for each raft rented. Use this information to solve Exercises 165 and 166.

AMERICAN RIVER RAFT RENTALS

Size	Rental Fee	Launch Fee
4-person	\$28	\$2
6-person	\$38	\$2
10-person	\$70	\$2
12-person	\$75	\$2
16-person	\$85	\$2



Source: American River Raft Rentals.

165. On a recent Tuesday the following rafts were rented: 6 4-person; 15 6-person; 10 10-person; 3 12-person; and 2 16-person. Find the total receipts, including the \$2 per-raft launch fee.

166. On the 4th of July the following rafts were rented: 38 4-person; 73 6-person; 58 10-person; 34 12-person; and 18 16-person. Find the total receipts, including the \$2 per-raft launch fee.

New York plans to build the world's tallest structure. Broadcasters are proposing to build a \$200 million television tower to replace the antenna lost when the World Trade Center was destroyed by terrorists. The pictogram below shows the height of buildings around the world. Use this information to solve Exercises 167–170.

167. How much taller are the Petronas Towers in Malaysia than the Eiffel Tower in Paris?

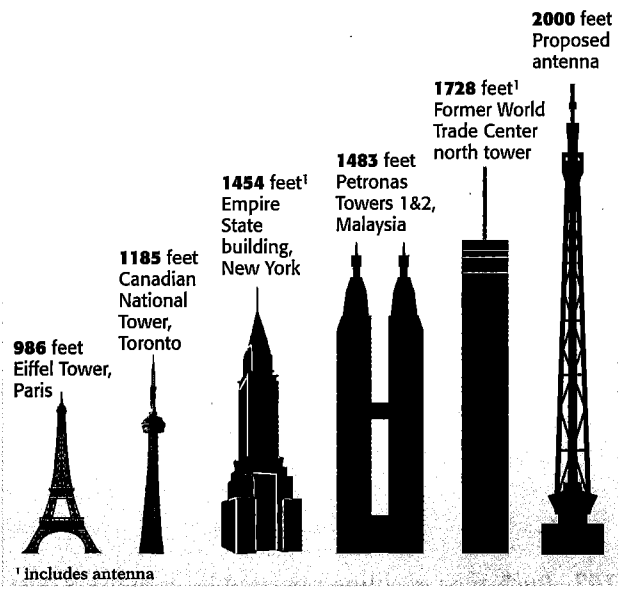
168. How much taller is the Empire State Building in New York than the Canadian National Tower in Toronto?

169. (a) What is the combined height of the four existing buildings? Do not include the World Trade Center tower or the proposed antenna.
 (b) Is the combined height of these four buildings greater or less than a mile? How much greater or less than a mile? (Hint: 1 mile = 5280 ft)

170. The estimated cost of building the proposed antenna is \$200 million. What is the cost per foot?

THE WORLD'S TALLEST STRUCTURE

Broadcasters are proposing to build a \$200 million TV tower to replace the antenna lost when the World Trade Center towers collapsed.



Source: USA Today research; rendition by Peter Coe.