

115. $-2 \cdot |9 - 6^2|$


116. $8 - 3|5 - 4^2 + 1|$

117. $-3^2 - 5[4 - 2(4 - 9)]$

118. $-2[(3 - 4)^3 - 5] + 7$

119. $1 - 5|5 - (9 + 1)|$

120. $|6 - 3 \cdot 7| + |7 - (5 - 2)|$

 Use a calculator to evaluate each expression. Round approximate answers to four decimal places.

121. $3.2^2 - 4(3.6)(-2.2)$

122. $(-4.5)^2 - 4(-2.8)(-4.6)$

123. $(5.63)^3 - [4.7 - (-3.3)^2]$

124. $9.8^3 - [1.2 - (4.4 - 9.6)^2]$

125. $\frac{3.44 - (-8.32)}{6.89 - 5.43}$

126. $\frac{-4.56 - 3.22}{3.44 - (-6.26)}$

<4> Applications


Solve each problem. See Example 9.

127. **Gambler's ruin.** A gambler bets \$5 and loses. He doubles his bet and loses again. He continues this pattern, losing eight times in a row. His ninth bet will be $5 \cdot 2^8$ dollars.

- Calculate the amount of the ninth bet.
- What is the total amount lost on the first eight bets?

128. **Big profits.** Big Bulldog Motorcycles showed a profit of \$50,000 in its first year of operation. The company plans to double the profit each year for the next 9 years.

- What will be the amount of the profit in the tenth year?
- What will be the total amount of profit for the first 10 years of business?

 129. **Population of the United States.** In 2006 the population of the United States was 300.2 million (U.S. Census Bureau, www.census.gov). If the population continues to grow at an annual rate of 1.05%, then the population in the year 2020 will be $300.2(1.0105)^{14}$ million.

- Evaluate the expression to find the predicted population in 2020 to the nearest tenth of a million people.
- Use the accompanying graph to estimate the year in which the population will reach 400 million people.

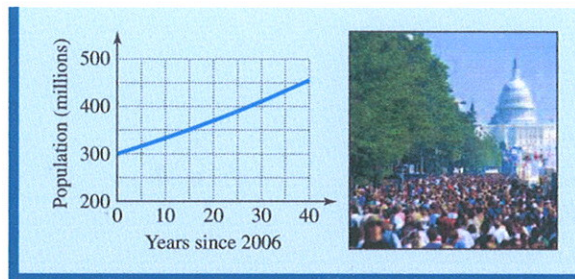


Figure for Exercise 129

130. **Population of Mexico.** In 2006 the population of Mexico was 107.4 million. If Mexico's population continues to grow at an annual rate of 1.43%, then the population in 2028 will be $107.4(1.0143)^{14}$ million.

- Find the predicted population in 2020 to the nearest tenth of a million people.
- Use the result of Exercise 129 to determine whether the United States or Mexico will have the greater increase in population between 2006 and 2020.

Getting More Involved

131. Discussion

How do the expressions $(-5)^3$, $-(5^3)$, -5^3 , $-(-5)^3$, and $-1 \cdot 5^3$ differ?

132. Discussion

How do the expressions $(-4)^4$, $-(4^4)$, -4^4 , $-(-4)^4$, and $-1 \cdot 4^4$ differ?