# 12 CUMULATIVE REVIEW Chapters 1–12

**Graph the function.**

**1.** $3x - y = 5$ *(p. 89)*

**2.** $\frac{1}{2}x + 3y = -4$ *(p. 89)*

**3.** $y = |x + 3| - 8$ *(p. 123)*

**4.** $y = x^2 - 6x - 27$ *(p. 236)*

**5.** $y = -2(x + 6)(x - 1)$ *(p. 245)*

**6.** $y = (x - 3)^2 + 4$ *(p. 245)*

**7.** $y = \sqrt{x + 6}$ *(p. 446)*

**8.** $y = \sqrt[3]{x} - 2$ *(p. 446)*

**9.** $y = 3 \cdot 4^{x-2}$ *(p. 478)*

**10.** $y = 12\left(\frac{1}{8}\right)^x$ *(p. 486)*

**11.** $y = \frac{2}{x - 3} + 5$ *(p. 558)*

**12.** $y = \frac{6}{x^2 - 4}$ *(p. 565)*

**Evaluate the determinant of the matrix.** *(p. 203)*

**13.** $\begin{bmatrix} 2 & 3 \\ 1 & 8 \end{bmatrix}$

**14.** $\begin{bmatrix} 12 & 3 \\ -7 & 8 \end{bmatrix}$

**15.** $\begin{bmatrix} 0 & 5 & 2 \\ 10 & 13 & -4 \\ -5 & 4 & -1 \end{bmatrix}$

**16.** $\begin{bmatrix} 5 & -9 & 4 \\ 4 & 2 & 1 \\ 0 & 1 & 1 \end{bmatrix}$

**The variables $x$ and $y$ vary inversely. Use the given values to write an equation relating $x$ and $y$. Then find the value of $y$ when $x = -8$.** *(p. 551)*

**17.** $x = 3, y = 6$

**18.** $x = -4, y = 9$

**19.** $x = 4, y = \frac{1}{8}$

**20.** $x = 9, y = \frac{2}{5}$

**Graph the equation.**

**21.** $\frac{x^2}{36} + \frac{y^2}{4} = 1$ *(p. 634)*

**22.** $\frac{y^2}{100} - \frac{x^2}{49} = 1$ *(p. 642)*

**23.** $(x - 3)^2 = 16y$ *(p. 650)*

**Find the number of permutations or combinations.**

**24.** ${}_9P_3$ *(p. 682)*

**25.** ${}_{16}P_5$ *(p. 682)*

**26.** ${}_7C_2$ *(p. 690)*

**27.** ${}_6C_6$ *(p. 690)*

**Find the indicated probability.**

**28.** $P(A) = 0.32$
$P(B) = 0.6$
$P(A \text{ or } B) = 0.85$
$P(A \text{ and } B) =$ ? *(p. 707)*

**29.** $A$ and $B$ are dependent events.
$P(A) = 0.5$
$P(B|A) = 0.3$
$P(A \text{ and } B) =$ ? *(p. 717)*

**30.** $A$ and $B$ are independent events.
$P(A) = 0.25$
$P(B) =$ ?
$P(A \text{ and } B) = 0.2$ *(p. 717)*

**Find the mean, median, mode, range, and standard deviation of the data set.** *(p. 744)*

**31.** 19, 11, 8, 10, 11, 15, 16

**32.** 54, 58, 49, 60, 63, 58, 42

**33.** 216, 203, 225, 216, 212, 228, 209

**34.** −3, 5, −11, 6, −3, 2

**35.** 99, 92, 93, 82, 88, 71, 97

**36.** 78, 4, 28, 57, 88, 24, 57, 37, 65

**Find the sum of the series.**

**37.** $\sum_{i=1}^{6} 3i^2$ *(p. 794)*

**38.** $\sum_{i=1}^{16} (-2 + i)$ *(p. 802)*

**39.** $\sum_{i=1}^{12} \left(\frac{2}{3}\right)^{i-1}$ *(p. 810)*

**40.** $\sum_{i=1}^{\infty} 5\left(\frac{1}{3}\right)^{i-1}$ *(p. 820)*

**Write an explicit rule and a recursive rule for the sequence.** *(p. 827)*

**41.** −7, −3, 1, 5, . . .

**42.** 1, −14, −29, −44, . . .

**43.** 3, 12, 48, 192, . . .