# Chapter 13

## Written Exercises, Pages 526–528

**1.** 7 **3.** 4 **5.** $\sqrt{10}$ **7.** 10 **9.** $2\sqrt{13}$ **11.** $5\sqrt{2}$ **13.** Yes; $A$ **15.** No **17.** $(-3, 0)$; 7
**19.** $(j, -14)$; $\sqrt{17}$ **21.** $(x - 3)^2 + y^2 = 64$ **23.** $(x + 4)^2 + (y + 7)^2 = 25$ **27.** $AM = AY = 3\sqrt{5}$
**29.** $\frac{JA}{RF} = \frac{6}{3} = \frac{2}{1}$; $\frac{AN}{FK} = \frac{2\sqrt{5}}{\sqrt{5}} = \frac{2}{1}$; $\frac{JN}{RK} = \frac{4\sqrt{2}}{2\sqrt{2}} = \frac{2}{1}$. The $\triangle$ are $\sim$ by SSS $\sim$ Thm. **31.** 39 **33.** (10, 0), (6, 8), (8, 6), (0, 10), $(-6, 8)$, $(-8, 6)$, $(-10, 0)$, $(6, -8)$, $(8, -6)$, $(0, -10)$, $(-6, -8)$, $(-8, -6)$
**35.** $x^2 + (y - 6)^2 = 100$ **37.** $x^2 + (y - 2)^2 = 9$ **39. a.** 5; 10 **b.** 15 **c.** Dist. between ctrs. = sum of radii. **41.** Quad. $RAYJ$ is a $\square$. **43.** 15, 5, 2, $-1$, $-11$ **45.** $(-2, 4)$; 6

## Written Exercises, Pages 532–534

**1. a.** $k$ **b.** $n, r$ **c.** $l$, $x$-axis **d.** $s$, $y$-axis **3.** 1 **5.** $-1$ **7.** $-1$ **9.** 0 **11.** $\frac{3}{2}$
**13.** $-\frac{2}{5}$; $2\sqrt{29}$ **15.** $\frac{3}{4}$; 10 Answers will vary in Exs. 17–19. Examples are given.
**17.** $(-8, -2)$, (2, 2) **19.** $(-4, -4)$, $(4, -6)$ **21.** Slope of $\overline{PQ}$ = slope of $\overline{QR}$ = $-\frac{1}{3}$ **23.** 9
**25.** $m(r - p) + q$ **27. a.** SAS **b.** $m\angle BOS = m\angle BOR + m\angle ROS = m\angle BOR + m\angle AOB = 90$
**c.** $-1$ **29. a.** $RS = \sqrt{58}$; $RT = 2\sqrt{2}$; $ST = 5\sqrt{2}$ **b.** $(RT)^2 + (ST)^2 = 8 + 50 = 58 = (RS)^2$ **c.** $-1$
**31.** 1 **33.** $a = 2\sqrt{3} + 1$

## Algebra Review, Page 534

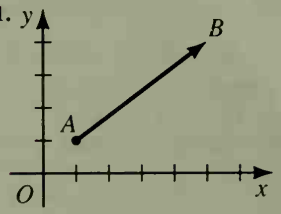
**1.** $-216$ **3.** $\frac{1}{9}$ **5.** $-\frac{1}{64}$ **7.** $\frac{27}{125}$ **9.** 1 **11.** 2 **13.** $r^{13}$ **15.** $r^5$ **17.** 1 **19.** $b^8$
**21.** $6y^6$ **23.** $5b^4$

## Written Exercises, Pages 537–538

**1. a.** $\frac{2}{3}$ **b.** $\frac{2}{3}$ **c.** $-\frac{3}{2}$ **3.** $\frac{7}{2}$; $\frac{7}{2}$; 0; 0 **5. a.** $-3$; $-3$ **b.** Slope of $\overline{LM}$ = slope of $\overline{PN}$ **c.** $\frac{1}{3}$; $-\frac{1}{7}$
**d.** Slope of $\overline{MN} \neq$ slope of $\overline{LP}$ **e.** trap. **7.** Slope of $\overline{AC} = -\frac{5}{2}$, slope of $\overline{AB} = \frac{3}{7}$, slope of $\overline{BC} = \frac{8}{5}$; slope of alt. to $\overline{AC} = \frac{2}{5}$, slope of alt. to $\overline{AB} = -\frac{7}{3}$, slope of alt. to $\overline{BC} = -\frac{5}{8}$ **9.** Slope of $\overline{RS} = \frac{6}{5}$, slope of $\overline{ST} = -\frac{5}{6}$; $\frac{6}{5}\left(-\frac{5}{6}\right) = -1$ **11. a.** Slope of $\overline{AB} = \frac{2 - (-4)}{4 - (-6)} = \frac{3}{5}$, and slope of $\overline{DC} = \frac{8 - 2}{6 - (-4)} = \frac{3}{5}$; $\overline{AB} \parallel \overline{DC}$. Slope of $\overline{AD} = \frac{2 - (-4)}{-4 - (-6)} = 3$, slope of $\overline{BC} = \frac{8 - 2}{6 - 4} = 3$; $\overline{AD} \parallel \overline{BC}$. **b.** $AB = 2\sqrt{34} = DC$, $AD = 2\sqrt{10} = BC$ **13. a.** Slope of $\overline{RS}$ = slope of $\overline{UT} = \frac{4}{3}$; slope of $\overline{RU}$ = slope of $\overline{ST} = -\frac{3}{4}$; $RSTU$ is a $\square$. $\overline{RS} \perp \overline{RU}$, so $RSTU$ is a rect. **b.** $RT = US = 5\sqrt{5}$ **15.** trap. **17.** rect. **19.** $\frac{3}{4}$ **21. a.** True **b.** True **c.** True

## Written Exercises, Pages 541–543

**1.**




$\overrightarrow{AB} = (4, 3)$
$|\overrightarrow{AB}| = 5$

**3.** $(-2, 2)$; $2\sqrt{2}$
**5.** $(-4, 2)$; $2\sqrt{5}$
**7.** $(5, -9)$; $\sqrt{106}$
**9.** $(-3, -6)$; $3\sqrt{5}$

**15.**