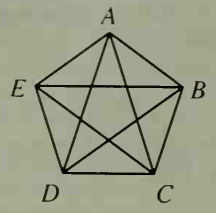
Written Exercises, Pages 107–109

1. 256, 1024 **3.** $\frac{1}{81}, \frac{1}{243}$ **5.** 17, 23 **7.** 15, 4 **9.** 500, 250 **11.** none **13.** none

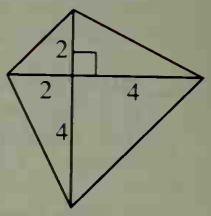
15. $1234 \times 9 + 5 = 11111$ **17.** $9999^2 = 99980001$

21. True.



Given: $ABCDE$ is a reg. pentagon.
Prove: $\overline{AC} \cong \overline{AD} \cong \overline{BE} \cong \overline{BD} \cong \overline{CE}$

23. False.



27. a. Opp. $\measuredangle$ are $\cong$. **b.** If both pairs of opp. $\measuredangle$ of a quad. are $\cong$, then opp. sides are $\parallel$. Given: $ABCD$ is a quad.; $m\angle A = m\angle C$; $m\angle B = m\angle D$ Prove: $\overline{AD} \parallel \overline{BC}$; $\overline{AB} \parallel \overline{CD}$ Proof: 1. $m\angle A + m\angle B + m\angle C + m\angle D = 360$ (The sum of the meas. of the int. $\measuredangle$ of a quad. is 360.) 2. $m\angle A = m\angle C$; $m\angle D = m\angle B$ (Given) 3. $2m\angle A + 2m\angle B = 360$; $2m\angle B + 2m\angle C = 360$ (Substitution Prop.) 4. $m\angle A + m\angle B = 180$; $m\angle B + m\angle C = 180$ (Div. Prop. of =) 5. $\angle A$ and $\angle B$ are supp.; $\angle B$ and $\angle C$ are supp. (Def. of supp. $\measuredangle$) 6. $\overline{AD} \parallel \overline{BC}$; $\overline{AB} \parallel \overline{CD}$ (If 2 lines are cut by a trans. and s-s. int. $\measuredangle$ are supp., then the lines are $\parallel$.) **c.** Both pairs of opp. $\measuredangle$ of a quad. are $\cong$ if and only if opp. sides are $\parallel$. **29.** 5; 9; 14; 20; $\frac{n(n-3)}{2}$

Self-Test 2, Page 110

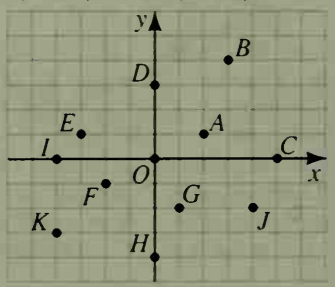
1. acute **2.** scalene **3.** 60 **4.** 105, 35 **5.** 19 **6.** $y = 50, z = 60$ **7.** $x = 1, x = 7$ **8.** 8
9. equilateral, equiangular **10.** 360, 144 **11.** 6, 60 **12.** 32 **13.** 32 **14.** 36 **15.** 16

Chapter Review, Pages 111–112

1. 2 **3.** alt. int. **5.** 105, 105 **7.** $y = 20$ **9.** $\overleftrightarrow{DE}$; $\angle A$ is supp. to $\angle ADE$. **11.** See page 85.
13. 180 **15.** $\angle 3 \cong \angle 6$; If 2 $\measuredangle$ are supp. of $\cong \measuredangle$, then the 2 $\measuredangle$ are $\cong$. $\angle 2 \cong \angle 8$; If 2 $\measuredangle$ of one $\triangle$ are $\cong$ to 2 $\measuredangle$ of another $\triangle$, then the third $\measuredangle$ are $\cong$. **17.** 160 **19.** 12 **21.** $\frac{1}{100}, -\frac{1}{1000}$

Algebra Review, Page 113

1. 3 **3.** (0, 0) **5.** (3, 5) **7.** (4, 0) **9.** (−5, 0) **11.** (−2, 2) **13.** (−2, −3) **15.** K, O, S
17. 3 **19.** M, N, P **21.** V, W **23–34.**



35. (2, 1) **37.** (0, 3)
39. (−4, −2)

Cumulative Review, Pages 114–115

1. sometimes **3.** sometimes **5.** always **7.**

9. not possible **11.** $x = 13$; $m\angle PQR = 156$

13. 15, 75, 90 **15.** 90 **17.** 90 **19.** 60 **21.** 60 **23.** False. If 2 lines are $\parallel$, then they do not intersect; true. **25.** True. If an $\angle$ is not obtuse, then it is acute; false. **27.** Vert. $\measuredangle$ are $\cong$.
29. $\angle$ Add. Post. **31.** The meas. of an ext. $\angle$ of a $\triangle$ = the sum of the meas. of the 2 remote int. $\measuredangle$.
33. The sum of the meas. of the $\measuredangle$ of a $\triangle$ is 180. **35.** X **37.** pentagon **39.** $\cong$ **41.** biconditional
43. 1080 **45.** 1. $\overline{WX} \perp \overline{XY}$ (Given) 2. $\angle 1$ is comp. to $\angle 2$. (If the ext. sides of adj. $\measuredangle$ are $\perp$, then the $\measuredangle$ are comp.) 3. $\angle 1$ is comp. to $\angle 3$. (Given) 4. $\angle 2 \cong \angle 3$ (Comps. of same $\angle$ are $\cong$.)