Answers for Lesson 5-1, pp. 262–264 Exercises

1. 9 **2.** 7 **3.** 14 **4.** $23\frac{1}{2}$

5. 11 **6.** 2 **7.** 40 **8.** 50

9. 160 **10.** 80

11. $\overline{UW} \parallel \overline{TX}; \overline{UY} \parallel \overline{VX}; \overline{YW} \parallel \overline{TV}$

12. $\overline{GJ} \parallel \overline{FK}; \overline{JL} \parallel \overline{HF}; \overline{GL} \parallel \overline{HK}$

13. **a.** $\overline{ST} \parallel \overline{PR}; \overline{SU} \parallel \overline{QR}; \overline{UT} \parallel \overline{PQ}$

b. $m\angle QPR = 40$

14. $\overline{FE}$ **15.** $\overline{FG}$ **16.** $\overline{AB}$

17. $\overline{EG}$ **18.** $\overline{AC}$ **19.** $\overline{CB}$

20. **a.** 1050 ft

b. 437.5 ft

21. **a.** 114 ft 9 in.

b. Answers may vary. Sample: The highlighted segment is the midsegment of the triangular face of the building.

22. 60 **23.** 45 **24.** 100 **25.** 55

26. **a.** $H(2, 0); J(4, 2)$

b. Slope of $\overline{HJ} = \frac{2}{2} = 1$; slope of $\overline{EF} = \frac{4}{4} = 1$; therefore $\overline{HJ} \parallel \overline{EF}$.

c. $HJ = \sqrt{2^2 + 2^2} = \sqrt{8} = 2\sqrt{2}; EF = \sqrt{4^2 + 4^2} = \sqrt{32} = 4\sqrt{2}$; therefore $HJ = \frac{1}{2}EF$.

27. $18\frac{1}{2}$ **28.** 37 **29.** C **30.** 60

31. 50 **32.** 10 **33.** $x = 6; y = 6\frac{1}{2}$

34. 52 **35.** $x = 3; DF = 24$ **36.** $x = 9; EC = 26$

37. Answers may vary. Sample: Draw $\overline{CA}$ and extend $\overrightarrow{CA}$ to P so that $CA = AP$. Find B, the midpt. of $\overline{PD}$. Then, by the $\triangle$ Midsegment Thm., $\overline{AB} \parallel \overline{CD}$ and $AB = \frac{1}{2}CD$.

38. $G(4, 4)$; $H(0, 2)$; $J(8, 0)$

39. $\triangle UTS$; Proofs may vary. Sample: $\overline{VS} \cong \overline{SY}$, $\overline{YT} \cong \overline{TZ}$, and $\overline{VU} \cong \overline{UZ}$ because S, T, and U are midpts. of the respective sides; $ST = \frac{1}{2}VZ$ so $\overline{ST} \cong \overline{VU} \cong \overline{UZ}$; $SU = \frac{1}{2}YZ$ so $\overline{SU} \cong \overline{YT} \cong \overline{TZ}$; and $TU = \frac{1}{2}VY$ so $\overline{TU} \cong \overline{SY} \cong \overline{SV}$; therefore $\triangle YST \cong \triangle TUZ \cong \triangle SVU \cong \triangle UTS$ by SSS.