Answer Key

Lesson 6.4

Practice Level C

1. similar **2.** cannot be determined **3.** similar

4. not enough information

5. $\triangle LMN \sim \triangle HGD$; both are 18°-72°-90° ⚠s

6. $\triangle XTR \sim \triangle KAJ$ by the AA Similarity Post.

7. $\triangle QNM \sim \triangle PNO$ by the AA Similarity Post.

8. $\triangle ABC \sim \triangle EDC$; The vertical angles are $\cong$, so the AA Similarity Post. applies.

9. $\triangle RSV \sim \triangle RTU$; $\angle R \cong \angle R$ and there are two pairs of $\cong$ corresponding $\angle$s.

10. $x = 5, y = \frac{\sqrt{149}}{2}$ **11.** $x = 3\frac{1}{3}, y = 4\frac{2}{3}$

12. not possible: can't be sure the triangles are similar **13.** $x = \frac{\sqrt{306}}{3}, y = 12$ **14.** no **15.** yes

16. yes **17.** $(6, 4), (6, -4)$ **18.** $(0, 9), (0, -9)$

19. $\left(\frac{54}{13}, \frac{36}{13}\right), \left(\frac{54}{13}, -\frac{36}{13}\right)$ **20.** $(0, 4), (0, -4)$

21. $(6, 9), (6, -9)$ **22.** $\left(\frac{24}{13}, \frac{36}{13}\right), \left(\frac{24}{13}, -\frac{36}{13}\right)$

23. You are given that $\angle CAB$ is a right $\angle$ and $\overline{AD}$ is an altitude. Then $\overline{AD} \perp \overline{BC}$ by the def. of altitude. So, $\angle CDA$ is a right $\angle$ because if two lines are $\perp$, they intersect to form four right $\angle$s. Because all right $\angle$s are $\cong$, $\angle CAB \cong \angle CDA$. You know that $\angle ACD \cong \angle ACD$ by the Reflexive Prop. of $\cong$. Therefore, $\triangle ABC \cong \triangle DAC$ by the AA Similarity Post.

24. You are given $\overline{AC} \parallel \overline{GE}$ and $\overline{BG} \parallel \overline{CF}$. Then $\angle A \cong \angle E$ and $\angle EDF \cong \angle EHG$ by the Corr. $\angle$s Post. But, $\angle EHG \cong \angle AHB$ by the Vertical $\angle$s Congruence Thm. So, $\angle EDF \cong \angle AHB$ by the Transitive Prop. of $\cong$. Therefore, $\triangle ABH \sim \triangle EFD$ by the AA Similarity Post.

25. 900,000 km; The dashed line is perpendicular to the bases of the two triangles, so those bases are parallel. This leads to $\cong$ alt. int. $\angle$s. Then the ⚠s are similar by AA and you can form a proportion to estimate the Sun's diameter.