

Warm Up 46

1. similarity ratio
2. the Angle-Angle-Side Theorem
3. D

Lesson Practice 46

- a. Since $\overline{AD} \parallel \overline{BC}$ and $\overline{AB} \parallel \overline{DC}$, the alternate interior angles are congruent: $\angle ACD \cong \angle CAB$ and $\angle BCA \cong \angle CAD$. By the AA Similarity Postulate, $\triangle ABC \sim \triangle CDA$.
- b. Since $\frac{5}{8} = \frac{16}{25.6} = \frac{9}{14.4}$, the triangles are similar by SSS.
- c. Since $\frac{4}{8} = \frac{5}{10}$, the triangles have two pairs of proportional sides. $\angle ACB \cong \angle DCE$ since they are vertical angles, so the two triangles are congruent by SAS similarity; $x = 1.75$;
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- d. 23 feet

Practice 46

1. 4
2. 577 miles
3. They are similar; $\frac{3}{4}$ or $\frac{4}{3}$
4. C
5. 45°

Statements	Reasons
1. $AB < DE$	1. Assumed
2. $\overline{XE} \cong \overline{AB}$, $\overline{XY} \cong \overline{DF}$	2. Ruler Postulate, Parallel Postulate
3. $\angle EXY \cong \angle EDF$	3. Corresponding Angles Postulate
4. $\angle E \cong \angle E$	4. Reflexive Property of Congruence
5. $\triangle XEY \sim \triangle DEF$	5. AA Similarity
6. $\frac{XE}{DE} = \frac{EY}{EF}$	6. Definition of Similar Triangles
7. $\frac{AB}{DE} = \frac{BC}{EF}$, $\angle B \cong \angle E$	7. Given
8. $XE = AB$	8. Definition of Congruence
9. $\frac{XE}{DE} = \frac{BC}{EF}$	9. Substitute
10. $BC = EY$, $\overline{BC} \cong \overline{EY}$	10. Definition of Congruence
11. $\triangle ABC \cong \triangle XEY$	11. SAS Congruence Theorem
12. $\triangle ABC \sim \triangle XEY$	12. Definition of Similarity
13. $\triangle ABC \sim \triangle DEF$	13. Transitive Property of Similarity

7. It is a trapezoid since it has exactly one pair of parallel sides
8. 24 feet
9. 5:3
10. 15.5 meters
11. $-3 < x < -2$ or $2 < x < 3$
12. 3
13. Sample: (0, 0), (6, 0), (6, 6), (0, 6)
14. A tangent line intersects the circle at only one point. A secant intersects the circle at two points.
15. 15 inches
16. $\triangle HJK$ and $\triangle LMN$ are right triangles, $\overline{HJ} \cong \overline{LM}$, and $\overline{HK} \cong \overline{LN}$; by the LL Congruence Theorem, $\triangle HJK \cong \triangle LMN$.
17. 15
18. Sample: (0, 3), (-4, 0), (4, 0)
19. Since x is opposite the longer side, with the other two sides being congruent, x is greater.
20. $\frac{5}{8}$
21. $\angle JGK \cong \angle HGF$ by the Vertical Angles Theorem, $\angle J \cong \angle H$ because they are alternate interior angles, so $\triangle GKJ \sim \triangle GFH$ by AA Similarity. $x = 7.3$
22. This is a list of palindromes (words that spell the same word forwards and backwards) that increase by one letter each entry.
23. 8
24. 360 sides
25. Yes
26. 9.52 cm

27. 23.42 cm
28. 42.375
29. Since $\angle T$ and $\angle W$ are right angles, $\triangle RST$ and $\triangle UVW$ are right triangles; $\overline{RT} \cong \overline{UW}$ and $\overline{ST} \cong \overline{VW}$; by the LL Congruence Theorem, $\triangle RST \cong \triangle UVW$.
30. $\frac{AB}{DE} = \frac{BC}{EF} = \frac{CA}{FD}$ = similarity ratio; crossmultiply to find the values of the unknown sides.