

Warm Up 41

1. proportion
2. true
3. $\overline{AB} \cong \overline{DE}, \overline{BC} \cong \overline{EF},$
 $\overline{AC} \cong \overline{DF}$
4. ASA Congruence
Theorem

Lesson Practice 41

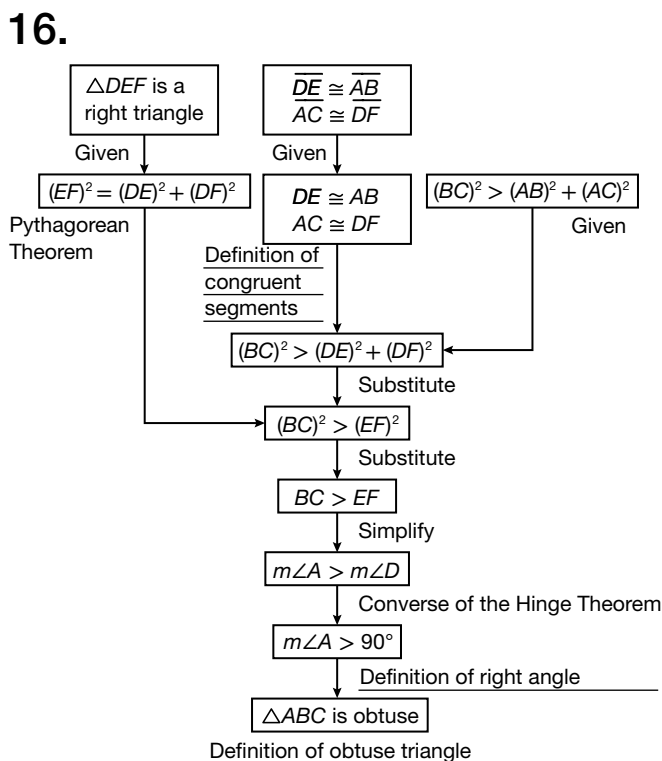
- a. 4:9:6
- b. 1:3, 1 to 3, $\frac{1}{3}$
- c. $\frac{6}{18} = \frac{9}{27}$
- d. 24
- e. $x = 25$
- f. $m\angle O = 62^\circ,$
 $m\angle R = 122^\circ$
- g. $x = 9, y = 15, z = 27$
- h. 10 ft

Practice 41

1. No. He must have added the interior angles, because all the exterior angles combined would have equaled 720° .
2. 73° , 10 units
3. On the map, draw a triangle with each friend's home at a vertex. Find the perpendicular bisectors of all three sides of the triangle to find the circumcenter of the triangle. The circumcenter is the optimal location for the reunion.
4. \overline{AB} is longer than \overline{DE} .
5. They are perpendicular.
6. $x = 1$
7. Transitive Property of Equality
8. heptagon; yes; no; irregular
- 9.

Statements	Reasons
1. $ABCD$ is a quadrilateral, draw \overline{AC}	1. Given
2. $m\angle ABC + m\angle BCA + m\angle CAB = 180^\circ$	2. Triangle Angle Sum Theorem
3. $m\angle ACD + m\angle CDA + m\angle DAC = 180^\circ$	3. Triangle Angle Sum Theorem
4. $m\angle ABC + m\angle BCA + m\angle CAB + m\angle ACD + m\angle CDA + m\angle DAC = 180^\circ + 180^\circ$	4. Addition Property of Equality
5. $m\angle ABC + m\angle BCA + m\angle CAB + m\angle ACD + m\angle CDA + m\angle DAC = 360^\circ$	5. Simplify
6. $m\angle ABC + m\angle BCD + m\angle CDA + m\angle DAB = 360^\circ$	6. Angle Addition Postulate

10. Since all triangles are convex, the sum of the interior angles in a triangle = $180(3 - 2) = 180^\circ$.
11. $(46 + 3.125\pi) \text{ in}^2$
12. 226.19 in.
13. Answers will vary. Any answer of the form $7n$, $24n$, $25n$, where n is a nonzero whole number other than 1.
14. 43.875 in^2
15. $\triangle LJK$
- 16.
17. $DC = 46.8 \text{ cm}$; Centroid Theorem
18. $2g$
19. $RT = 30 \text{ ft}$; $ST = 40 \text{ ft}$
20. The triangles are right triangles, and the hypotenuses are congruent; so by Alternate Exterior Angles Theorem, the angles at Madison/Broadway and Marion/Broadway are congruent; by the HA Congruence Theorem, the triangles are congruent.



21. 2-by-2.5-inches.
22. $x = 15$; $m\angle P = 117^\circ$;
 $m\angle R = 117^\circ$;
 $m\angle Q = 63^\circ$;
 $m\angle S = 63^\circ$
23. $y = 2.4$;
perimeter = 120
24. triangle, angle, side

25. No, a side length can never be greater than or equal to the sum of the other two side lengths.
26. $\triangle ABC \cong \triangle EFD$
27. $\angle U$
28. π^3 or about 30.96 units²
29. C
30. Sample: If a figure is a square, then it is a rhombus; and if a figure is a rhombus, its area is half the product of its diagonals; so by the Law of Syllogism, if a figure is a square, then its area is half the product of its diagonals.