Warm Up 38

1. median
2. a. C

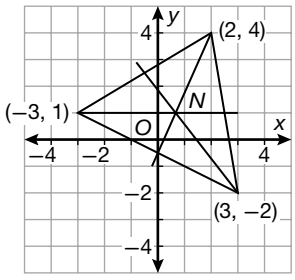
   b. C

   c. B

   d. A
3. 39°

Lesson Practice 38

a.



b. $\frac{20}{3}$

c. $\left(0, -\frac{7}{6}\right)$

d. (2, 3)

Practice 38

1. a. obtuse

   b. acute

   c. right

2. On the map, draw a triangle with each town 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 fire station.

3. 10 m; yes

4. See student work.

5. Addition Property of Equality

6. $\overrightarrow{QR}$

7. They are perpendicular.

8. 217.10 ft

9. 720°

10. The heights are equal.

11. The logic is flawed because two things are not necessarily the same just because they have a common function; it is not true that sunglasses are safety glasses.

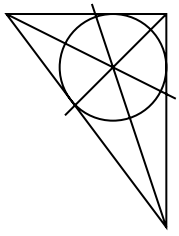
12. $y = -\frac{1}{2}x$

13. 16

14. 26.18 in^2

15. Yes, the triangles are congruent; no; the Leg-Angle Congruence Theorem does not apply, because the parts of the triangles marked congruent are the hypotenuse and the angle, not the leg and the angle. Therefore, by the Hypotenuse Leg Congruence Theorem, the triangles are congruent.

16. She should mark the center of the circle at the incenter of the triangle because it is equidistant from each side of the triangle. This would ensure the largest circle possible from the scrap piece.



17. (3.67, 3.33)

18. 5.25 in^2

19. Yes; The step using the Division Property of Equality is incorrect since $x = y$ is given so $x - y = 0$ and the Division Property of Equality is not defined for dividing by 0.

20. C

21. Sample: It is given that $\overline{AD} \parallel \overline{BC}$ and $\overline{DC} \parallel \overline{AB}$. Since these sets of parallel lines are cut by transversals, we know that the alternate interior angles they form must be congruent, so $\angle DAC \cong \angle ACB$ and $\angle DCA \cong \angle CAB$. $\triangle ACB$ and $\triangle CAD$ share a common side, $\overline{AC}$. By the Reflexive Property, $\overline{AC}$ is congruent to itself. This shows that two angles and an included side of $\triangle ACB$ are congruent to two angles and an included side of $\triangle CAD$, so $\triangle ACB \cong \triangle CAD$.

22. 27 feet

23. approximately 17.32

24. "A bus is a downtown bus and is green"; false

25. $x = 26$ in.

26. 9.60 cm^2

27. $y = \frac{3}{2}x - 0.5$

28. Since $\angle J$ and $\angle P$ are right angles, $\triangle JKL$ and $\triangle PQR$ are right triangles; $\overline{KL} \cong \overline{QR}$ and $\angle Q \cong \angle K$; by the Hypotenuse-Angle Congruence Theorem, $\triangle JKL \cong \triangle PQR$.

29.

Statements	Reasons
1. $m\angle ABC = m\angle ACB$	1. Given
2. $m\angle ACB = m\angle ABC$	2. Symmetric Property of Equality
3. $BC = CB$	3. Symmetric Property of Equality
4. $\triangle ABC \cong \triangle ACB$	4. ASA Theorem
5. $AB = AC$	5. CPCTC

30. $y = 50, x = 9$