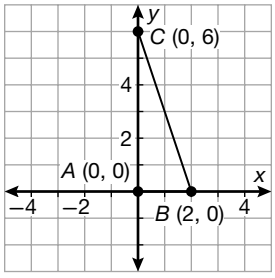
Warm Up 45

1. distance
2. 3.2
3. (4, 3)
4. $-\frac{7}{3}$
5. 5 units

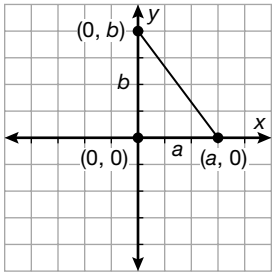
Lesson Practice 45

a.



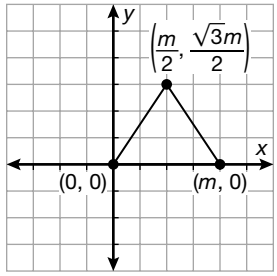
b. Proofs will vary but should show that $JK = KL$, so the triangle is isosceles.

c.



d. Proofs will vary but should show that opposite sides are of equal length or parallel.

e.



Practice 45

1. Possible answers: (2, 2), (0, 4), (−4, 0), or (−2, −2)
2. 29
3. $x = 1.7$
4. $y = 2$
5. 6.4
6. $L(2, 3)$
7. 31.4 cm
8. Yes, diagonals of parallelograms bisect each other; No, not enough is known about the shape's angle measures, so more information is needed to classify the shape as a rectangle.
9. (7, 2)
10. $m\angle A = 77°$, $m\angle Y = 53°$
11. similar; $\frac{5}{8}$ or $\frac{8}{5}$
12. 332 ft^2
13. **a.** 321 cm^2

    b. 120 cm^2
14. 33 feet
15. Since the remaining angle at the top of this triangle is 60°, the smallest angle is 48° and the 5.5-ft length is the smallest. The 7-ft side is opposite the largest angle, so the piece of wood needed for the unknown side should be somewhere between 5.5 ft and 7 ft.
16. 5:2
17. 900°, 128.57°
18. $y = 3x$
19. k can be any real number (except 3, which would make it the same line). Changing the y-intercept only shifts the entire line vertically; it does not change the slope of the line, so the lines will remain parallel.

20. For each pair of right triangles, hypotenuses and one acute angle pair are congruent, because the other acute angle is complementary to both; so by the HA Theorem, all four right triangles are congruent.

21. For $\triangle ABC \cong \triangle DEF$ to be true, $AB = DE$, $m\angle ABC = m\angle DEF$, and $BC = DF$ must also be true by CPCTC. Solving for x using $AB = DE$:

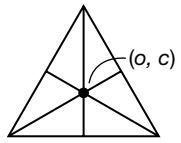
$$x + 3 = 2x + 1$$
$$x = 2$$

Substituting x into $m\angle ABC = m\angle DEF$:

$$16x + 8 = 18x$$
$$16(2) + 8 = 18(2)$$
$$32 + 8 = 36$$
$$40 \neq 36$$

Since $m\angle ABC \neq m\angle DEF$, the triangles cannot be congruent.

22. scalene; obtuse

23. 

;

They are in the same location.

24. 1080°

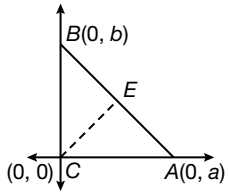
25. No. $\overline{NO}$ and $\overline{DF}$ are not corresponding sides for the angles given to be equal.

26.

Statements	Reasons
1. O center of the circle	1. Given
2. $OA = OB$	2. Radii
3. $OC = OD$	3. Radii
4. $m\angle AOC = m\angle BOD$	4. Vertical Angle Theorem
5. $\triangle AOC \cong \triangle BOD$	5. SAS Congruence Theorem

27. 104°; 76°; 104°

28.



$$E\left(\frac{a+0}{2}, \frac{b+0}{2}\right)$$

$$E\left(\frac{a}{2}, \frac{b}{2}\right)$$

$$AE = \sqrt{\left(a - \frac{a}{2}\right)^2 + \left(0 - \frac{b}{2}\right)^2}$$

$$AE = \sqrt{\frac{a^2}{4} + \frac{b^2}{4}}$$

$$BE = \sqrt{\left(0 - \frac{a}{2}\right)^2 + \left(b - \frac{b}{2}\right)^2}$$

$$BE = \sqrt{\frac{a^2}{4} + \frac{b^2}{4}}$$

$$CE = \sqrt{\left(0 - \frac{a}{2}\right)^2 + \left(b - \frac{b}{2}\right)^2}$$

$$CE = \sqrt{\frac{a^2}{4} + \frac{b^2}{4}}$$

$$AE = BE = CE$$

29. $m\overset{\frown}{AB} = 20°$, $m\overset{\frown}{BC} = 25°$, $m\overset{\frown}{AC} = 45°$,
$m\overset{\frown}{XY} = 24°$, $m\overset{\frown}{YZ} = 21°$, $m\overset{\frown}{XZ} = 45°$

30. **C**