

**Warm Up 63**

1. segment
2. 13 cm
3. B
4. A line extends forever, but a line segment has a defined length.

**Lesson Practice 63**

- a. vectors:  $\vec{x}$  with initial point A,  $\vec{y}$  with initial point C, and  $\vec{z}$  with initial point F.
- b.  $\sqrt{34}$
- c.  $\langle 6, 4 \rangle$
- d.  $\langle 0, 0 \rangle$
- e.  $\langle 20, 8 \rangle$
- f. 3.5 miles per hour

## Practice 63

1.  $114^\circ$
2. 2 in.
3.  $x = -3$
4.  $\frac{1}{4}$  or 0.25;  $\frac{5}{16}$  or 0.3125
5. C
6. always
7. For  $\angle P$  to be larger,  $x > 5$  and for  $\angle P$  to be smaller,  $2 < x < 5$ .
8. Assume  $\triangle ABC$  is congruent to  $\triangle ADC$ . However, since  $D$  is not the midpoint of  $BC$ , there is a contradiction and thus  $\triangle ABD \neq \triangle ADC$ .
9. 10,125 m
10. B
11.  $x = \sqrt{117}$
12. They can be parallel if the line segment connecting their respective points of tangency is a diameter.
13. Rafael did not realize that the transversals do not divide the section into congruent segments. He would need to use proportionality instead of congruence. The correct answer is  $BC = 5.14$ .
14.  $\langle 6, 4 \rangle$
15.  $2355 \text{ yd}^2$
16. 72 inches
17.  $z = 19$
18. 150 mph
19. 27.8 cm; kite
20.  $A = \frac{\sqrt{3}x^2}{2}$
21.  $24,416.64 \text{ cm}^3$
22. any number; a cylinder
23. 6 sides

24. Since the two base angles measure  $45^\circ$ , the angle at the top of the pyramid must have been  $90^\circ$ . Since the triangle is isosceles, dropping an altitude from the vertex would bisect the vertex angle, forming two smaller  $45^\circ$ - $45^\circ$ - $90^\circ$  triangles, one leg of which would be half the length of the pyramid, or 30 feet. Therefore the height, which is the other leg of the smaller right triangle, would also be 30 ft.
25. a.  $\sqrt{3}$  in.  
b.  $\sqrt{3}$  in<sup>2</sup>
26. Yes. Because the opposite sides are parallel, the alternate interior angles are congruent. Along with the congruent side shown, this proves that all the interior triangles are congruent. By CPCTC, all the opposite sides of the quadrilateral are congruent, so this is a parallelogram.
27.  $120 \text{ ft}^3$
28. approximately 40
29.  $3\sqrt{3}$
30. 524 seconds