Answers for 11.5

For use with pages 758–761

11.5 Skill Practice

1. sector

2. Yes; doubling the arc measure will make the sector twice as big, which would double the area.

3. 25π in.^{2}; 78.54 in.^{2}

4. 64π ft^2; 201.06 ft^2

5. 132.25π cm^2; 415.48 cm^2

6. 2.25π km^2; 7.07 km^2

7. about 7 m

8. about 11 in. **9.** 52 cm

10. The area of the sector needs to be divided by the area of the circle, and the right side should be 75 divided by 360; $\frac{n}{48} = \frac{75}{360}$; $n = 10$ ft^2.

11. about 52.36 in.^{2}, about 261.80 in.^{2}

12. about 177.88 cm^2, about 437.87 cm^2

13. about 937.31 m^2, about 1525.70 cm^2

14. about 84.02 m^2

15. about 66.04 cm^2

16. about 3.99 m

17. about 7.73 m^2

18. about 118.87 in.^{2}

19. A

20. about 9.11 in.

21. about 57.23 in.

22. about 58°

23. about 66.24 in.

24. about 9.22 in.

25. about 27.44 in.

26. about 26.77 in.^{2}

27. about 33.51 ft^2

28. about 85.84 in.^{2}

29. about 1361.88 cm^2

30. about 125.66 ft^2

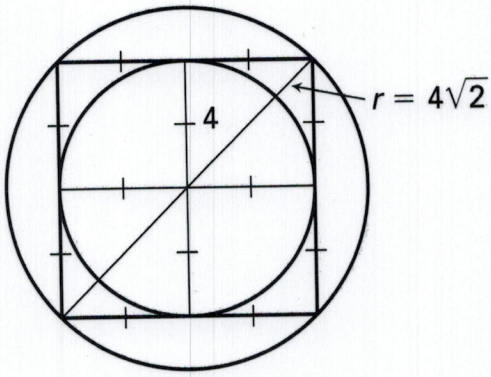
31. about 7.63 m^2

32. red: 19.2π square units, blue: 16π square units, yellow: 28.8π square units

33. For any two circles, the ratio of their circumferences is equal to the ratio of their radii; for any two circles, if the length of their radii is in the ratio of $a : b$, then the ratio of their areas is $a^2 : b^2$; all circles are similar, so you do not need to include similarity in the hypothesis.

34. Theorem 11.7 applies to similar figures; these sectors are not similar. The correct ratio is 2 : 1.

35.



2 : 1

36. 160 m^2

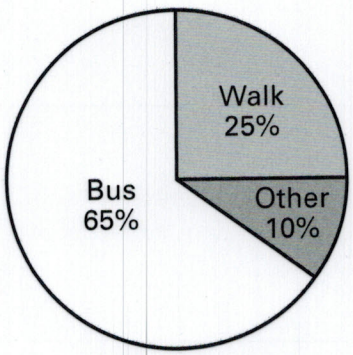
11.5 Problem Solving

37. about 314.16 mi^2

38. 1320 ft

39. a. The data is in percentages.

b. Bus: 234°, walk: 90°, other: 36°



c. bus: $\frac{13}{20}\pi r^2$, walk: $\frac{1}{4}\pi r^2$, other: $\frac{1}{10}\pi r^2$

40. 1 cup; the area of a 6-inch tortilla is 9π, the area of a 12-inch tortilla is 36π, since the 12-inch is four times larger, you need 4 times as much dough.

41. a. *Sample answer:* Old: about 371 mm^2, new: 682 mm^2; about 84%

b. *Sample answer:* No; the increase in overall area of the "a" is about 30%, which is much less than the percent increase in the interior area.

42. a. 2 14-in. pizzas; the area is larger than needed, but the cost of 2 14-inch pizzas is less than buying any other combination of pizzas to feed the 8 people.

b. One 14-in. pizza and 2 10-in. pizzas; there will be enough pizza to feed everyone and it is cheaper than any other combination.

c. 4 10-in.; you have more circumference here and therefore more crust.

43. a. height: r, base: πr, area: πr^2

b. You can use the formula for the circumference of a circle and then the formula for the area of a parallelogram to derive the area formula for a circle. The area of the circle is approximately the same as the area of the parallelogram.

44.

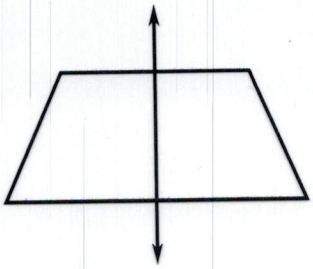
11.5 Mixed Review

45. 90°; definition of an altitude

46. 19°; since the altitude bisects the angle, $m\angle FDG = m\angle EDF$.

47. 3 cm; the altitude of an isosceles triangle bisects the base, so $FG = EF = 3$ cm.

48.



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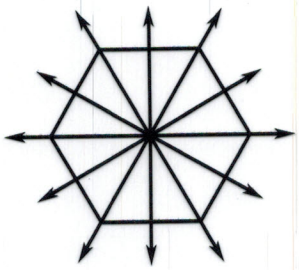

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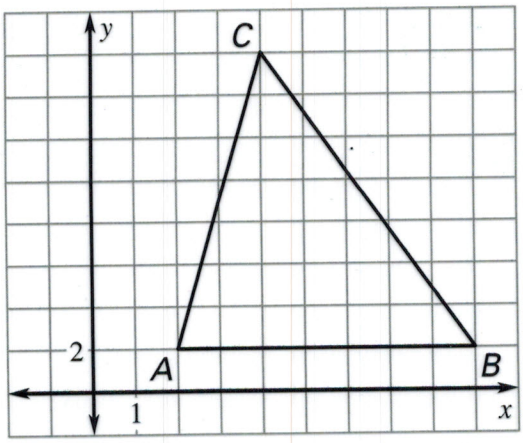

51.