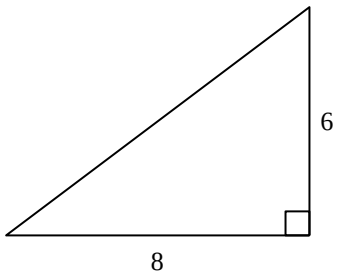
Geometry, 2nd Semester Exam (Review)

Find the length of the missing side. The triangle is not drawn to scale.

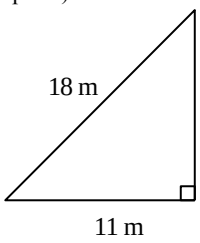
1. (1 point)



a. 28 b. 100 c. 10 d. 48

Find the length of the missing side. Leave your answer in simplest radical form.

2. (1 point)



Not drawn to scale

a. $\sqrt{29}$ m b. $\sqrt{445}$ m c. $\sqrt{7}$ m d. $\sqrt{203}$ m

3. (1 point)
A triangle has sides of lengths 6, 8, and 10. Is it a right triangle? Explain.

a. yes; $6^2 + 8^2 \neq 10^2$
b. no; $6^2 + 8^2 = 10^2$
c. no; $6^2 + 8^2 \neq 10^2$
d. yes; $6^2 + 8^2 = 10^2$

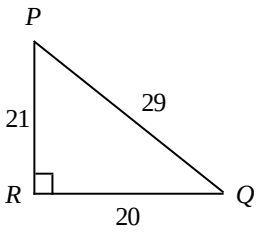
4. (1 point)
A triangle has side lengths of 14 cm, 48 cm, and 50 cm. Classify it as acute, obtuse, or right.

a. right b. acute c. obtuse

5. (1 point)
A triangle has side lengths of 28 in, 4 in, and 31 in. Classify it as acute, obtuse, or right.

a. obtuse b. right c. acute

6. (1 point)
Write the tangent ratios for $\angle P$ and $\angle Q$.



Not drawn to scale

a. $\tan P = \frac{29}{21}; \tan Q = \frac{21}{29}$

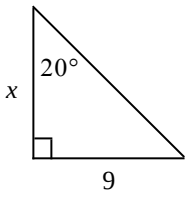
b. $\tan P = \frac{20}{21}; \tan Q = \frac{21}{20}$

c. $\tan P = \frac{21}{20}; \tan Q = \frac{20}{21}$

d. $\tan P = \frac{29}{20}; \tan Q = \frac{20}{29}$

Use a trigonometric ratio to find the value of *x*. Round your answer to the nearest tenth.

7. (1 point)

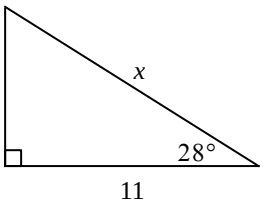


Not drawn to scale

a. 3.3 b. 3.1 c. 24.7 d. 8.5

Find the value of *x*. Round to the nearest tenth.

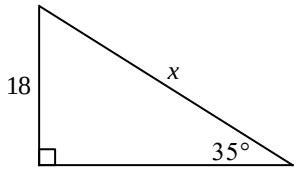
8. (1 point)



Not drawn to scale

a. 12.5 b. 10 c. 13 d. 9.7

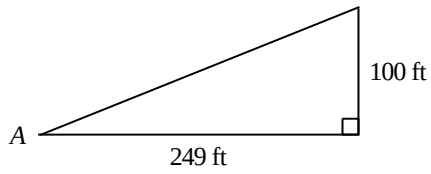
9. (1 point)



Not drawn to scale

a. 10.3 b. 31.4 c. 10.7 d. 31.8

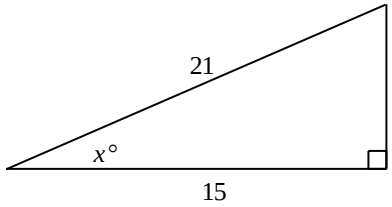
10. (1 point)
A large totem pole in the state of Washington is 100 feet tall. At a particular time of day, the totem pole casts a 249-foot-long shadow. Find the measure of $\angle A$ to the nearest degree.



a. 68° b. 45° c. 35° d. 22°

Find the value of *x*. Round to the nearest degree.

11. (1 point)

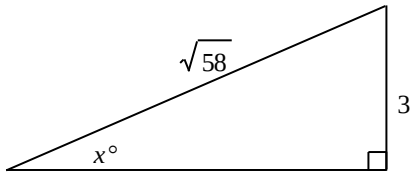


Not drawn to scale

a. 41 b. 36 c. 46 d. 44

Find the value of *x* to the nearest degree.

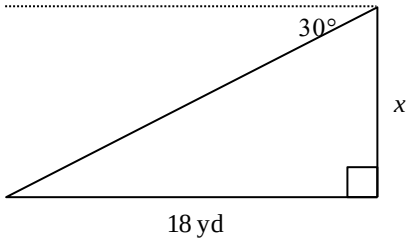
12. (1 point)



a. 67 b. 23 c. 83 d. 53

Find the value of *x*. Round the length to the nearest tenth.

13. (1 point)

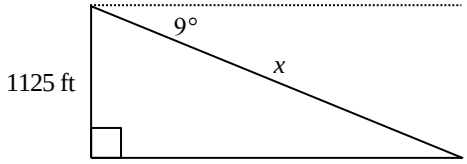


Not drawn to scale

a. 15.6 yd b. 10.4 yd c. 9 yd d. 31.2 yd

14. (1 point)

To approach the runway, a pilot of a small plane must begin a 9° descent starting from a height of 1125 feet above the ground. To the nearest tenth of a mile, how many miles from the runway is the airplane at the start of this approach?

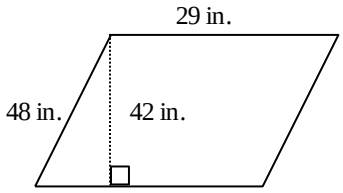


Not drawn to scale

a. 1.3 mi b. 1.4 mi c. 0.2 mi d. 7,191.5 mi

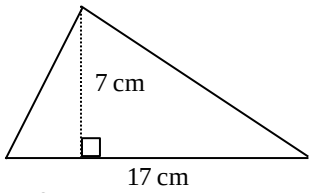
Find the area. The figure is not drawn to scale.

15. (1 point)



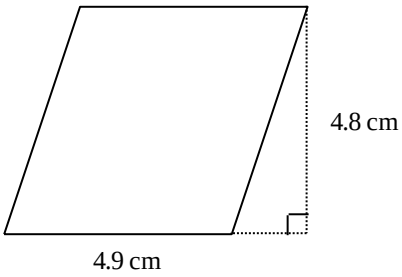
a. 1392 in.^{2} b. 142 in.^{2} c. 71 in.^{2} d. 1218 in.^{2}

16.(1 point)



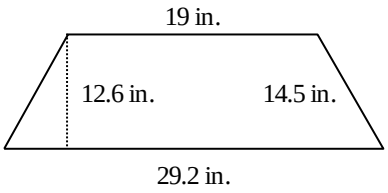
a. 12 cm^2 b. 59.5 cm^2 c. 24 cm^2 d. 119 cm^2

17. (1 point)



a. 9.7 cm^2 b. 23.52 cm^2 c. 0.1 cm^2 d. 47.04 cm^2

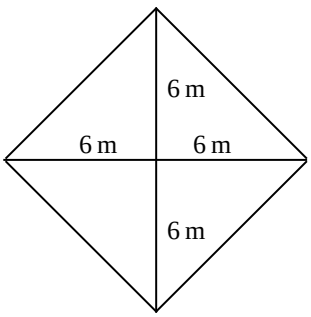
18. (1 point)



a. 77.2 $in.^2$ b. 303.66 $in.^2$ c. 607.32 $in.^2$ d. 36.7 $in.^2$

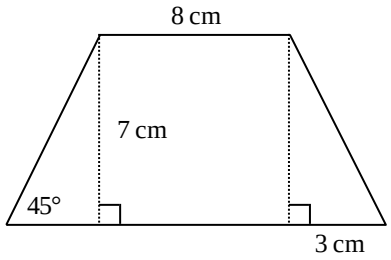
Find the area of the figure. Leave your answer in simplest radical form.

19. (1 point)
Find the area of the rhombus.



a. 9 m^2 b. 1296 m^2 c. 18 m^2 d. 72 m^2

20. (1 point)

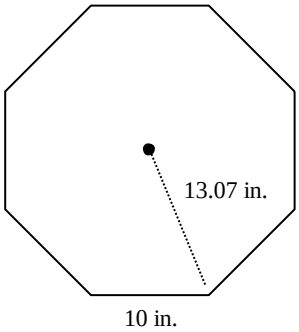


Not drawn to scale

a. 98 cm^2 b. 91 cm^2 c. 38.5 cm^2 d. 11 cm^2

21. (1 point)

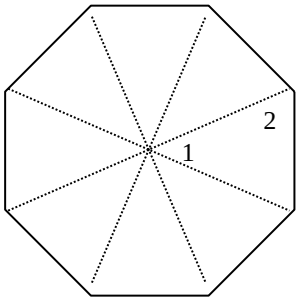
Find the area of the regular polygon. Round your answer to the nearest tenth.



a. 483.0 $in.^2$ b. 80.0 $in.^2$ c. 176.6 $in.^2$ d. 966.1 $in.^2$

22. (1 point)

Given the regular polygon, find the measure of each numbered angle.



a. $m\angle 1 = 45, m\angle 2 = 135$
b. $m\angle 1 = m\angle 2 = 60$
c. $m\angle 1 = 45, m\angle 2 = 67.5$
d. $m\angle 1 = 22.5, m\angle 2 = 78.75$

23. (1 point)

A gardener needs to cultivate a triangular plot of land. One angle of the garden is 47°, and two sides adjacent to the angle are 77 feet and 76 feet. To the nearest tenth, what is the area of the plot of land?

a. 4279.9 ft^2 b. 2163.5 ft^2 c. 2139.9 ft^2 d. 1995.5 ft^2

24. (1 point)
Divers looking for a sunken ship have defined the search area as a triangle with adjacent sides of length 2.75 miles and 1.32 miles. The angle between the sides of the triangle is 35°. To the nearest hundredth, find the search area.

a. 1.49 mi^2 b. 2.97 mi^2 c. 1.04 mi^2 d. 2.08 mi^2

Find the area of the regular polygon. Give the answer to the nearest tenth.

25. (1 point)
pentagon with side 7 cm

a. 67.4 cm^2 b. 84.3 cm^2 c. 168.6 cm^2 d. 16.9 cm^2

26. (1 point)
decagon with a side of 4 cm

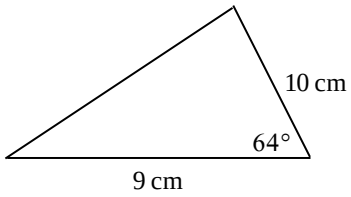
a. 123.1 cm^2 b. 129.4 cm^2 c. 246.2 cm^2 d. 139.8 cm^2

27. (1 point)
pentagon with a radius of 8 m

a. 304.3 m^2 b. 152.2 m^2 c. 30.4 m^2 d. 154.2 m^2

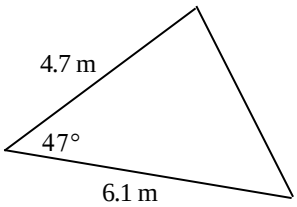
Find the area of the triangle. Give the answer to the nearest tenth. The drawing may not be to scale.

28. (1 point)



a. 92.3 cm^2 b. 40.4 cm^2 c. 19.7 cm^2 d. 80.9 cm^2

29. (1 point)



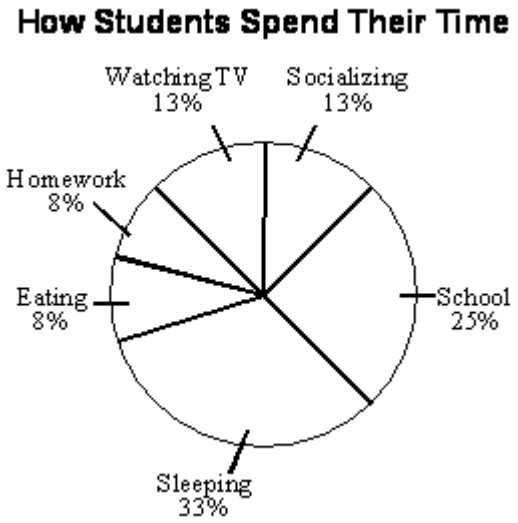
a. 10.5 m^2 b. 9.8 m^2 c. 19.6 m^2 d. 21.0 m^2

30.(1 point)

Grade 7 students were surveyed to determine how many hours a day they spent on various activities. The results are shown in the circle graph below. Find the measure of each central angle in the circle graph.

a. Sleeping

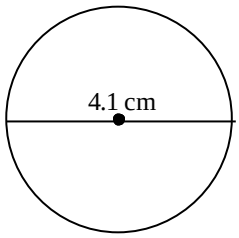
b. Eating



a. 118.8°; 28.8° b. 59.4°; 288° c. 108°; 28.8° d. 118.8°; 288°

Find the circumference. Leave your answer in terms of π.

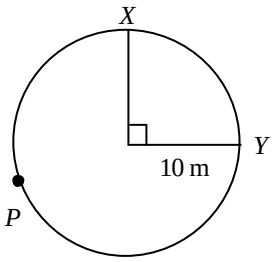
31. (1 point)



a. 6.15π cm b. 8.2π cm c. 2.05π cm d. 4.1π cm

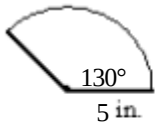
32. (1 point)

Find the length of arc *XPY*. Leave your answer in terms of π.



a. 5π m b. 15π m c. 900π m d. 30π m

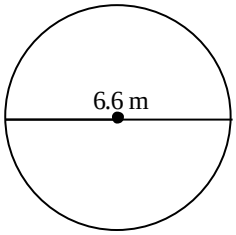
33. (1 point)
Find the area of the figure to the nearest tenth.



a. 56.7 $in.^2$ b. 5.7 $in.^2$ c. 28.3 $in.^2$ d. 9 $in.^2$

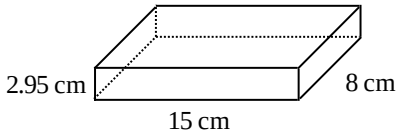
Find the area of the circle. Leave your answer in terms of π.

34. (1 point)



a. 43.56π m^2 b. 16.2π m^2 c. 21.78π m^2 d. 10.89π m^2

35. (1 point)
A jewelry store buys small boxes in which to wrap items that they sell. The diagram below shows one of the boxes. Find the lateral area and the surface area of the box to the nearest whole number.

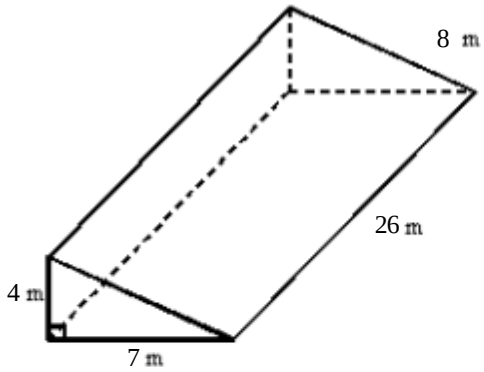


Not drawn to scale

a. 164 cm^2; 376 cm^2
b. 164 cm ; 256 cm
c. 329 cm^2; 376 cm^2
d. 329 cm ; 256 cm

Use formulas to find the lateral area and surface area of the given prism. Show your answer to the nearest whole number.

36. (1 point)

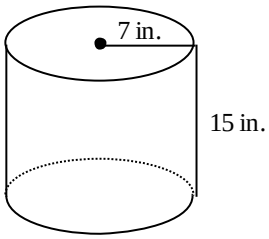


Not drawn to scale

a. 494 m^2; 522 m^2
c. 494 m^2; 508 m^2
b. 468 m^2; 550 m^2
d. 468 m^2; 522 m^2

Find the surface area of the cylinder in terms of π.

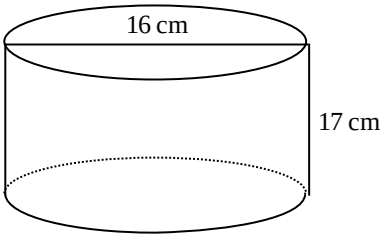
37. (1 point)



Not drawn to scale

a. 238π $in.^2$
b. 210π $in.^2$
c. 308π $in.^2$
d. 602 $in.^2$

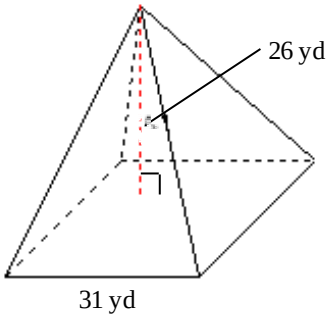
38. (1 point)



Not drawn to scale

a. 400π cm^2
b. 672 cm^2
c. 1056π cm^2
d. 784π cm^2

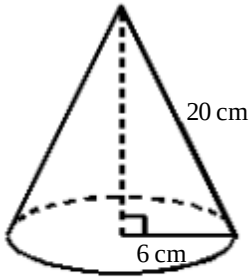
39. (1 point)
Find the lateral area of the pyramid shown to the nearest whole number.



Not drawn to scale

a. 2509 yd^2 b. 3753 yd^2 c. 1612 yd^2 d. 1877 yd^2

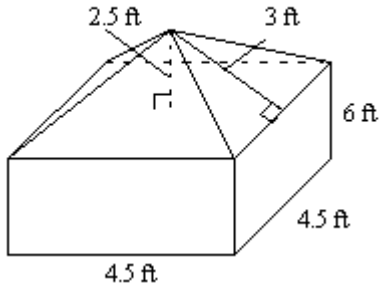
40. (1 point)
Find the surface area of the cone in terms of π.



Not drawn to scale

a. $276\pi \text{ cm}^2$ b. $132\pi \text{ cm}^2$ c. $156\pi \text{ cm}^2$ d. 138 cm^2

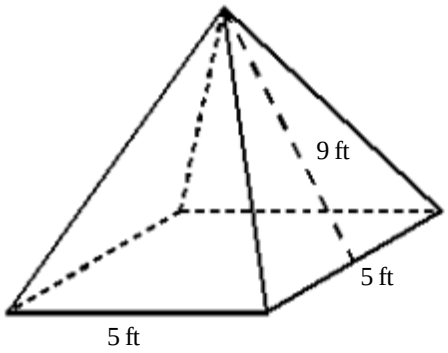
41. (1 point)
Find the surface area of the figure to the nearest whole number.



a. 74 ft^2 b. 310 ft^2 c. 135 ft^2 d. 155 ft^2

Find the surface area of the pyramid shown to the nearest whole number.

42. (1 point)

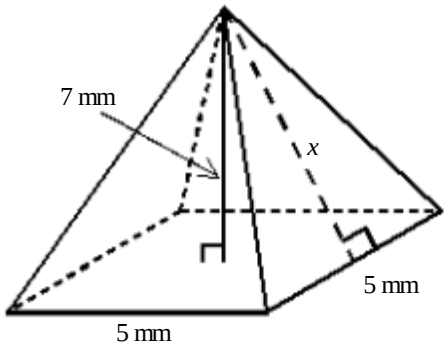


Not drawn to scale

a. 33 ft^2 b. 205 ft^2 c. 90 ft^2 d. 115 ft^2

43. (1 point)

Find the slant height x of the pyramid shown to the nearest tenth.

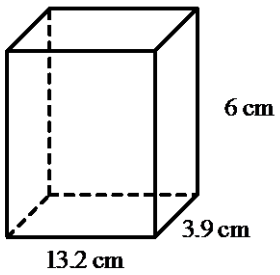


Not drawn to scale

a. 4.9 mm b. 4.8 mm c. 7.4 mm d. 8.6 mm

Find the volume of the given prism. Round to the nearest tenth if necessary.

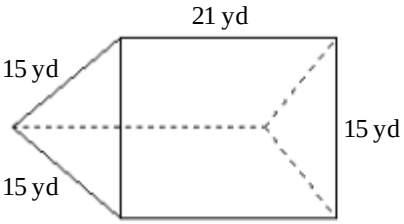
44. (1 point)



Not drawn to scale

a. 308.9 cm^3 b. 308.2 cm^3 c. 312.8 cm^3 d. 302.9 cm^3

45. (1 point)

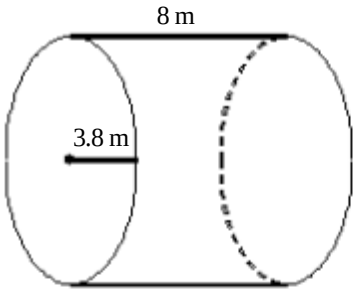


Not drawn to scale

a. 2046.0 yd^3 b. 4092.0 yd^3 c. 2362.5 yd^3 d. 1670.5 yd^3

Find the volume of the cylinder in terms of π.

46. (1 point)

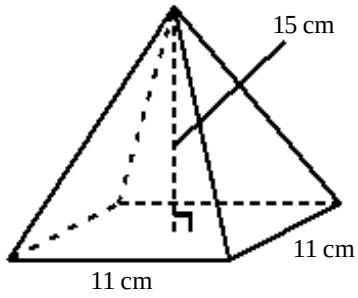


Not drawn to scale

a. 60.8 m^3 b. $115.52\pi \text{ m}^3$ c. $438.98\pi \text{ m}^3$ d. $57.76\pi \text{ m}^3$

Find the volume of the square pyramid shown. Round to the nearest tenth if necessary.

47. (1 point)

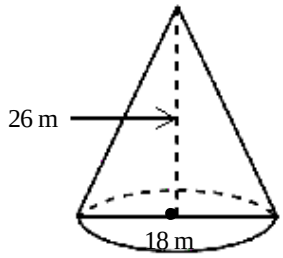


Not drawn to scale

a. 126 cm^3 b. 907.5 cm^3 c. 605 cm^3 d. 55 cm^3

Find the volume of the cone shown as a decimal rounded to the nearest tenth.

48. (1 point)

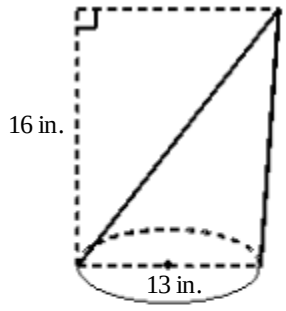


Not drawn to scale

a. 8821.6 m^3 b. 2205.4 m^3 c. 3308.1 m^3 d. 980.2 m^3

49. (1 point)

Find the volume of the oblique cone shown. Round to the nearest tenth**.**



Not drawn to scale

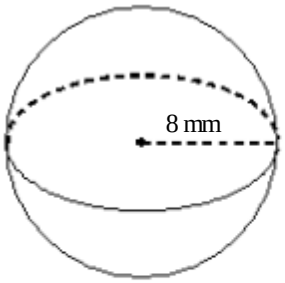
a. 108.9 in.^3 b. 707.9 in.^3 c. 1061.9 in.^3 d. 2123.7 in.^3

50. A balloon has a circumference of 23 cm. Use the circumference to approximate the surface area of the balloon to the nearest square centimeter.

a. 1662 cm^2 b. 168 cm^2 c. 529 cm^2 d. 674 cm^2

Find the volume of the sphere shown. Give each answer rounded to the nearest cubic unit.

51.



a. 268 mm^3 b. 1072 mm^3 c. 804 mm^3 d. 2145 mm^3

Find the surface area of the sphere with the given dimension. Leave your answer in terms of π.

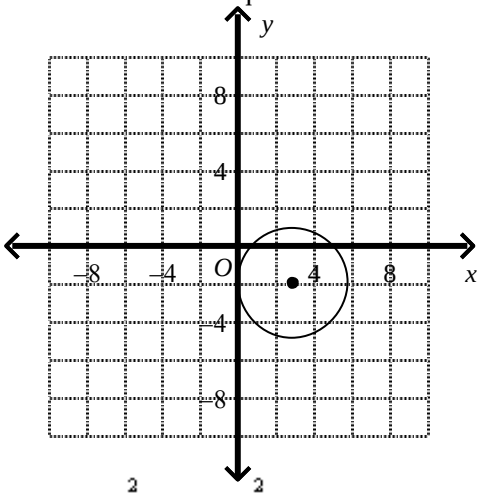
52. (1 point)
diameter of 14 cm

a. 784π cm^2 b. 28π cm^2 c. 98π cm^2 d. 196π cm^2

53. (1 point)
Find the center and radius of the circle with equation $(x - 5)^2 + (y + 3)^2 = 25$.

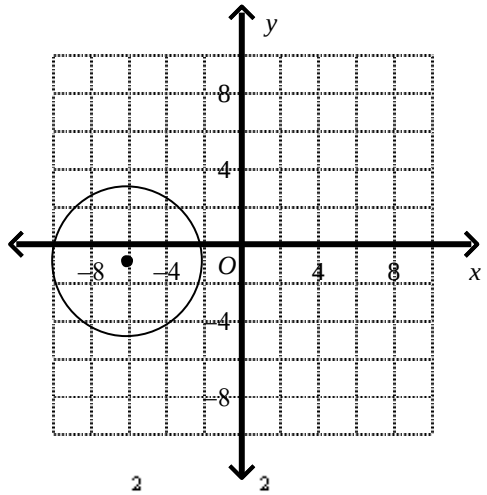
a. center (5, –3); $r = 25$
b. center (–5, 3); $r = 25$
c. center (5, –3); $r = 5$
d. center (3, –5); $r = 5$

54. (1 point)
Write the standard equation of the circle in the graph.



a. $(x + 3)^2 + (y - 2)^2 = 18$
b. $(x - 3)^2 + (y + 2)^2 = 9$
c. $(x - 3)^2 + (y + 2)^2 = 18$
d. $(x + 3)^2 + (y - 2)^2 = 9$

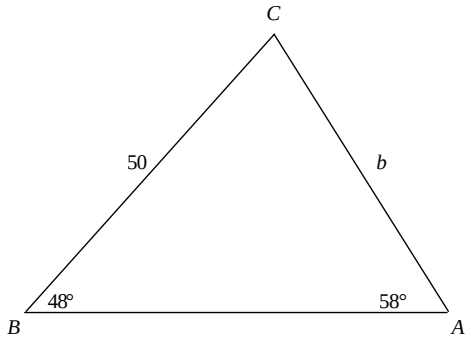
55. (1 point)
A low-wattage radio station can be heard only within a certain distance from the station. On the graph below, the circular region represents that part of the city where the station can be heard, and the center of the circle represents the location of the station. Which equation represents the boundary for the region where the station can be heard?



a. $(x + 6)^2 + (y + 1)^2 = 32$
b. $(x - 6)^2 + (y - 1)^2 = 32$
c. $(x + 6)^2 + (y + 1)^2 = 16$
d. $(x - 6)^2 + (y - 1)^2 = 16$

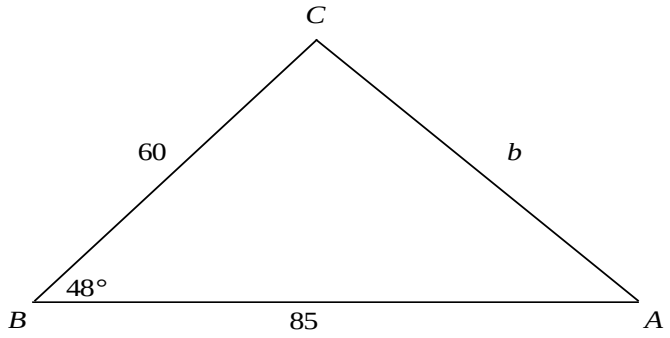
Use the Law of Sines to find the missing side of the triangle.

56. (1 point)
Find *b*.
a. 70.1
b. 43.8
c. 57.1
d. 31.5



57.(1 point)

Use the Law of Cosines. Find *b* to the nearest tenth.

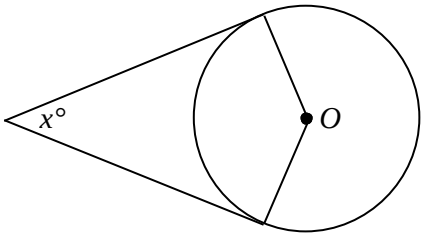


a. 102.2 b. 62.4 c. 132.9 d. 63.2

Assume that lines that appear to be tangent are tangent. *O* is the center of the circle. Find the value of *x*. (Figures are not drawn to scale.)

58. (1 point)

$m\angle O = 111$

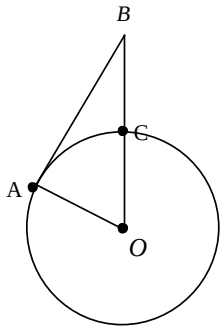


a. 291 b. 69 c. 55.5 d. 222

59.(1 point)

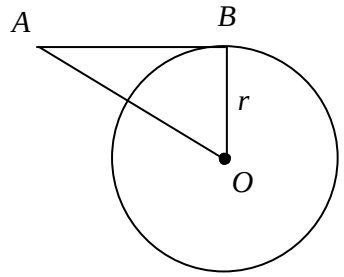
$\overline{AB}$ is tangent to $\odot O$. If $AO = 24$ and $BC = 50$, what is AB?

The diagram is not to scale.



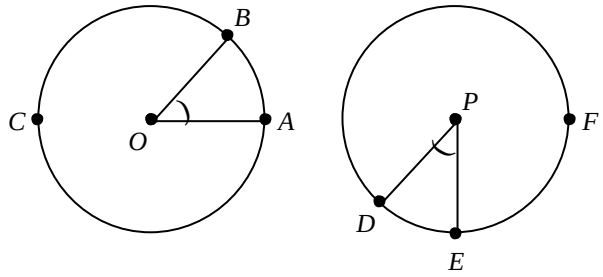
a. 74 b. 94 c. 70 d. 100

60. (1 point)
$\overline{AB}$ is tangent to circle O at B. Find the length of the radius r for $AB = 5$ and $AO = 8.6$. Round to the nearest tenth if necessary. The diagram is not to scale.



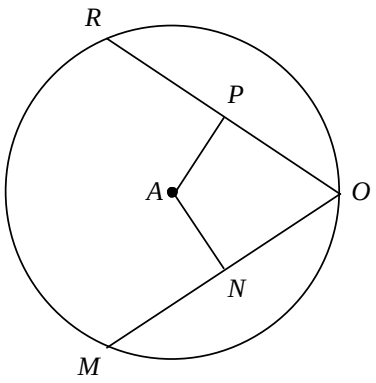
a. 9.9 b. 7 c. 13 d. 3.6

61. (1 point)
The circles are congruent. What can you conclude from the diagram?



a. $\overset{\frown}{CAB} \cong \overset{\frown}{FDE}$
b. $\overset{\frown}{DF} \cong \overset{\frown}{AC}$
c. $\overset{\frown}{AB} \cong \overset{\frown}{DE}$
d. none of these

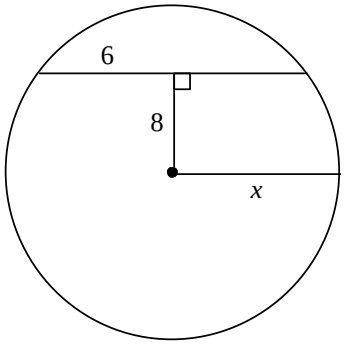
62. (1 point)
$\overline{NA} \cong \overline{PA}$, $\overline{MO} \perp \overline{NA}$, $\overline{RO} \perp \overline{PA}$, $MO = 3$ ft
What is PO?



a. 1.5 ft b. 6 ft c. 9 ft d. 3 ft

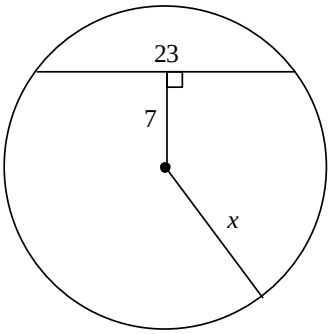
Find the value of *x*. If necessary, round your answer to the nearest tenth. The figure is not drawn to scale.

63. (1 point)



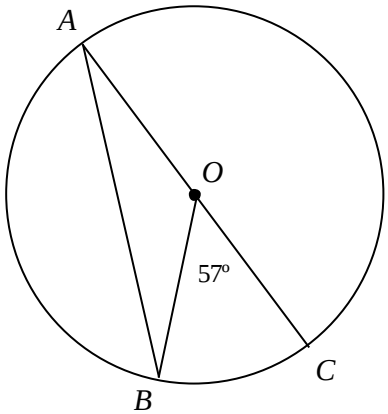
a. 8 b. 5 c. 6 d. 10

64. (1 point)



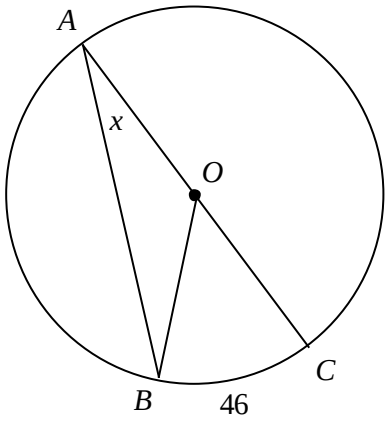
a. 21.9 b. 181.3 c. 24 d. 13.5

65. (1 point)
Find the measure of $\angle BAC$. (The figure is not drawn to scale.)



a. 57 b. 28.5 c. 33 d. 114

66. (1 point)
Find x. (The figure is not drawn to scale.)



a. 92 b. 44 c. 23 d. 46

Geometry, 2nd Semester Exam (Review)
Answer Section

1. C
2. D
3. D
4. A
5. A
6. B
7. C
8. A
9. B
10. D
11. D
12. B
13. B
14. B
15. D
16. B
17. B
18. B
19. D
20. B
21. A
22. C
23. C
24. C
25. B
26. A
27. B
28. B
29. A
30. A
31. D
32. B
33. C
34. D
35. C
36. A
37. C
38. A
39. D
40. C

41. D
42. D
43. C
44. A
45. A
46. B
47. C
48. B
49. B
50. B
51. D
52. D
53. C
54. B
55. C
56. B
57. D
58. B
59. C
60. B
61. C
62. A
63. D
64. D
65. B
66. C