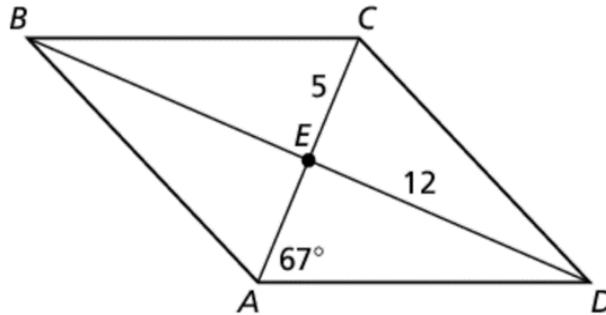


In Exercises 1–5, the diagonals of rhombus $ABCD$ intersect at E . Given that, $m\angle EAD = 67^\circ$, $CE = 5$, and $DE = 12$, find the indicated measure.

1. $m\angle AED$
2. $m\angle ADE$
3. $m\angle BAE$
4. AE
5. BE

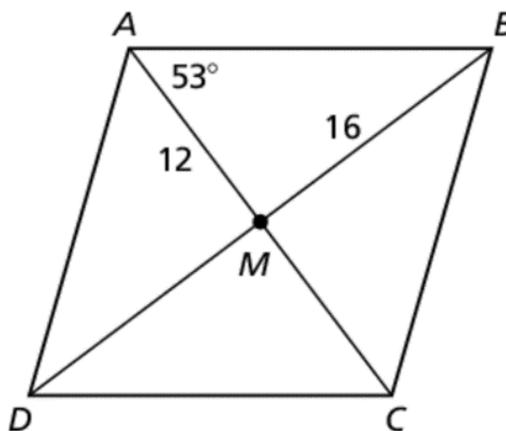


In Exercises 6 and 7, find the lengths of the diagonals of rectangle $JKLM$.

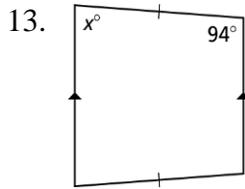
- | | |
|---|---|
| <ol style="list-style-type: none"> 6. $JL = 3x + 4$ $KM = 4x - 1$ | <ol style="list-style-type: none"> 7. $JL = 2x - 6$ $KM = \frac{3}{2}x + 1$ |
|---|---|

In Exercises 8–12, the diagonals of rhombus $ABCD$ intersect at M . Given that, $m\angle MAB = 53^\circ$, $MB = 16$, and $AM = 12$, find the indicated measure.

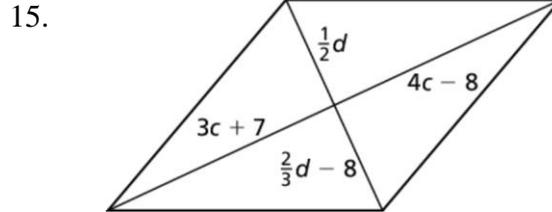
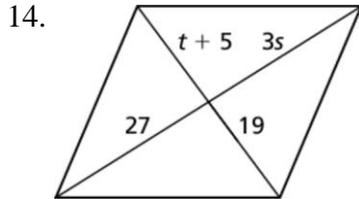
8. $m\angle AMD$
9. $m\angle ADM$
10. $m\angle ACD$
11. DM
12. AC



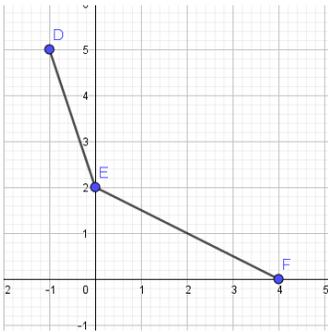
Find the value of x .



In Exercises 14-15, find the value of each variable in the parallelogram.



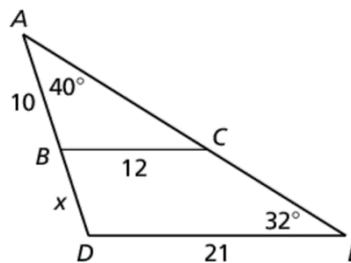
16. $DEFG$ is a parallelogram. What are the coordinates for the missing vertex G ?



17. Find the measure of each interior and exterior angle of a regular 30-gon.

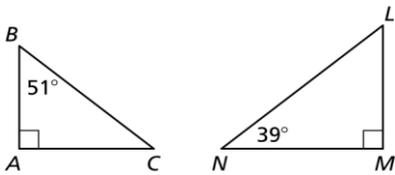
18. In the diagram, $\triangle ABC \sim \triangle ADE$

- Find the value of x .
- The perimeter of $\triangle ABC$ is about 42.4 units. Find the perimeter of the $\triangle ADE$
- The area of $\triangle ABC$ is about 71.75 square units. Find the area of the $\triangle ADE$
- Is $\overline{BC} \parallel \overline{DE}$ Explain your reasoning.

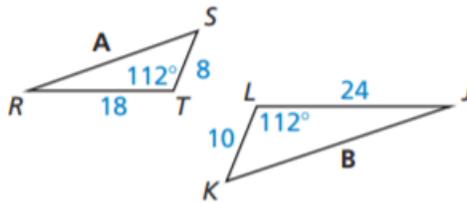


In exercises 19-21. Given the triangles below, what conjecture (AA~, SAS~, SSS~, or none) can be used to show that the triangles are congruent?

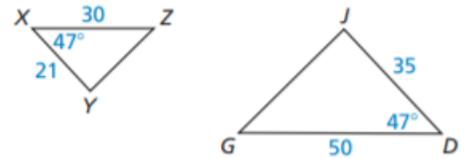
19.



20.



21.



22. The polygons are similar. The area of one polygon is given. Find the area of the other polygon.

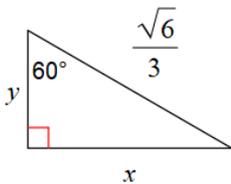


23. Figure A has an area of 48 square feet and one of the side lengths is 6 feet. Figure B has an area of 75 square feet. Find the missing corresponding side length.

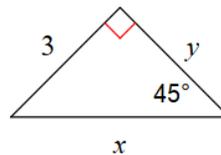
24. Figure A has a perimeter of 72 meters and one of the side lengths is 18 meters. Figure B has a perimeter of 120 meters. Find the missing corresponding side length.

Find the value of the variables. Write your answer in simplest radical form, if necessary.

25.

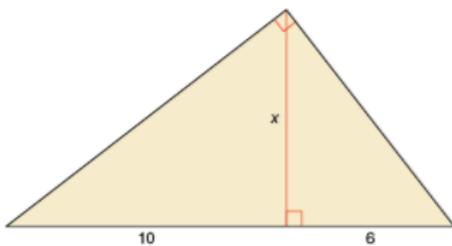


26.

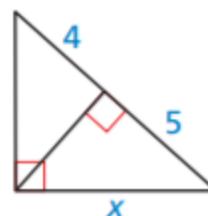


Use Similar Triangles to find the value of x .

27.



28.



29. Given the $\sin 49^\circ \approx 0.755$, what is the cosine of the complementary angle?

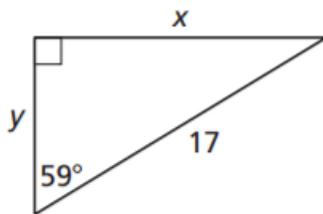
30. Write $\cos 36^\circ \approx 0.809$, what is the sine of the complementary angle?

31. A bird sits on top of a lamppost. The angle made by the lamppost and a line from the feet of the bird to the feet of an observer standing away from the lamppost is 55° . The distance from the lamppost to the observer is 25 feet. Estimate the height of the lamppost. Round to the nearest foot

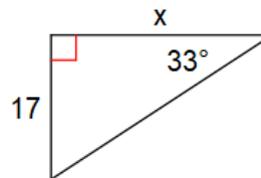
32. You go to the park on a windy day to fly a kite. You have released 40 feet of string. The string makes an angle of 36° with the ground. How high is the kite in the air? Round to the nearest foot.

Find the values of variables. Round your answer to the nearest tenth.

33.

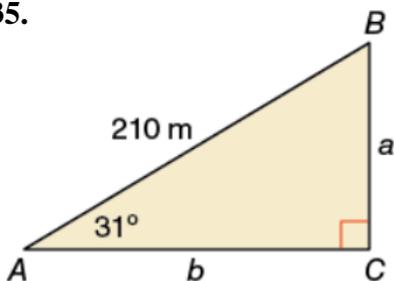


34.

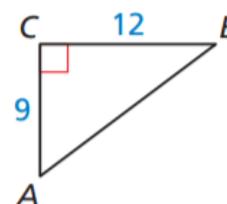


Solve the right triangle. Round decimal answers to the nearest tenth.

35.



36.



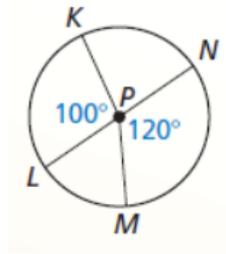
Use the diagram to find the measure of the indicated arc. Then state whether the arc is a major arc, minor arc, or semicircle.

37. \widehat{KL}

38. \widehat{LM}

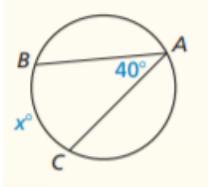
39. \widehat{KM}

40. \widehat{KNM}

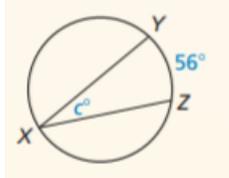


Find the values of the variables.

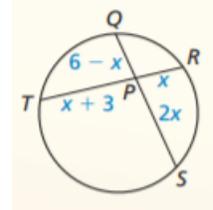
41.



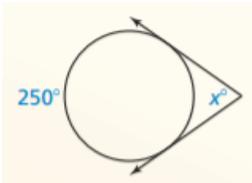
42.



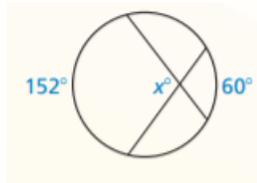
43.



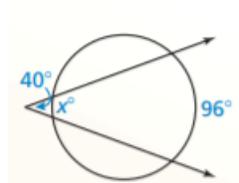
44.



45.



46.



Write the standard equation of the circle with the given center and radius.

47. center: (0, 0), radius: 9

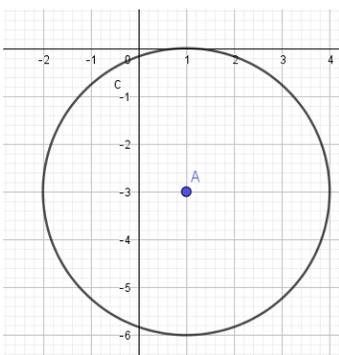
48. center: (-5, 2), radius: 1.3

49. center: (10, 7), radius: 3.5

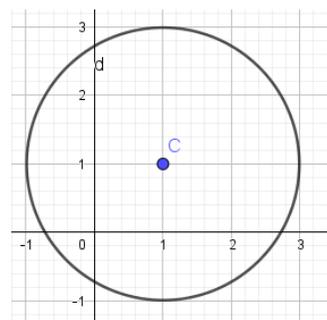
50. center: (0, 0), radius: 5.2

What is the equation of the circle on the graph?

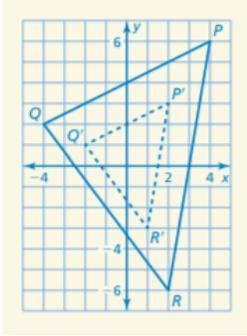
51.



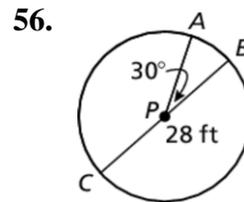
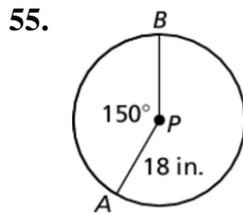
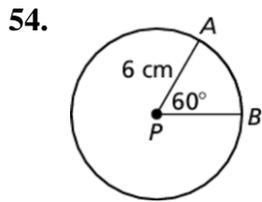
52.



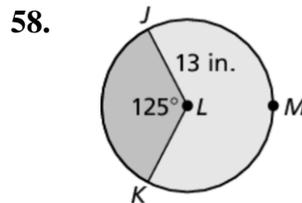
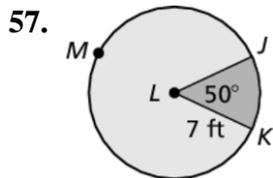
53. Look at the graph below. Triangle $P'Q'R'$ is a dilation of triangle PQR . What is the scale factor of the dilation?



In Exercises 54-56, find the arc length of \widehat{AB} . Write your answer in terms of π .



In Exercises 57-58, find the areas of the sectors formed by $\angle JLK$. Round your answer to the nearest tenth. There should be 2 answers. Show all work!



Change to radian measure in terms of π .

59. 240°

60. 80°

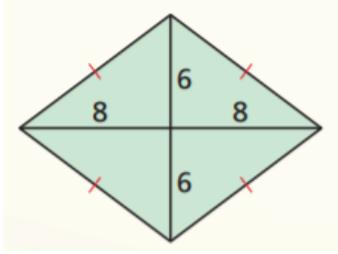
Change radians to degrees.

61. $\frac{5\pi}{3}$

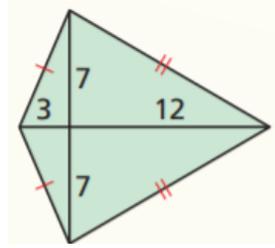
62. $\frac{13\pi}{36}$

Find the area of the kite or rhombus.

63.



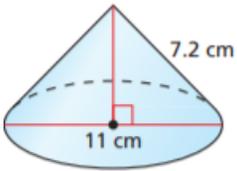
64.



65. A pyramid with a square base has a volume of 256 cubic inches and a height of 12 feet. Find the area of the base.

66. A rectangular prism has a length of 15 inches, a width of 12 inches, and the volume is 2700 cubic inches. What would the height have to be?

67. Find the surface area of the cone. Leave the answer in terms of π .



68. Find the volume of the pyramid.

