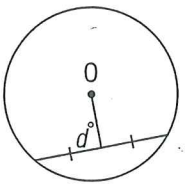
Practice

Check

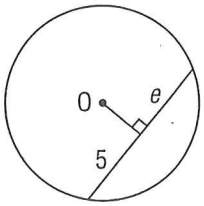
Give the answers to the nearest tenth where necessary.

3. Point O is the centre of each circle. Determine the values of $d°$, e, and f.

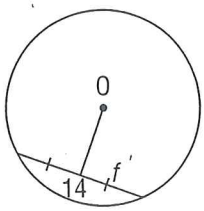
a)



b)

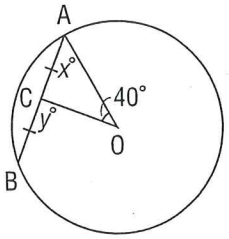


c)

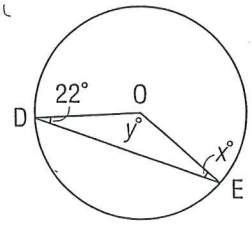


4. Point O is the centre of each circle. Determine each value of $x°$ and $y°$.

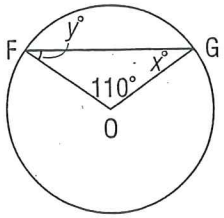
a)



b)

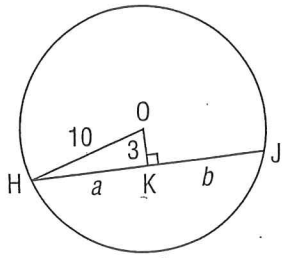


c)

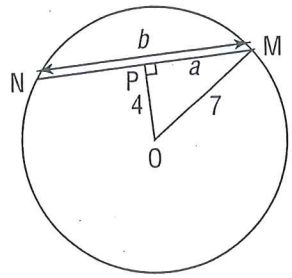


5. Point O is the centre of each circle. Determine each value of a and b.

a)

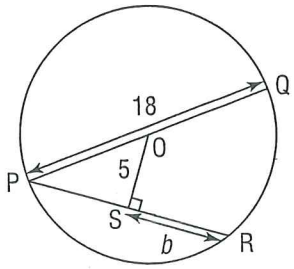


b)



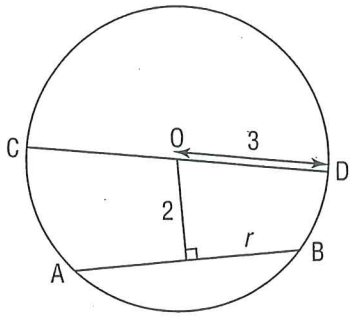
Apply

6. Point O is the centre of the circle. Determine the value of b. Which circle properties did you use?

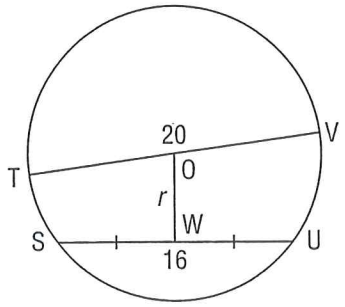


7. Point O is the centre of each circle. Determine each value of r. Which extra line segments do you need to draw first? Justify your solutions.

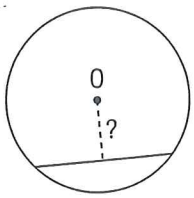
a)



b)



8. Construct a large circle, centre O.



a) Draw, then measure a chord in the circle. How far is the chord from O?

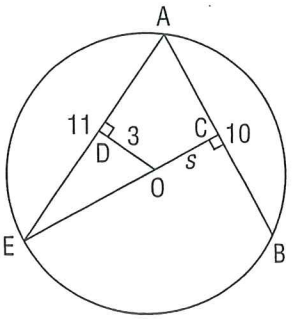
b) Draw other chords that are the same length as the chord you drew in part a. For each chord you draw, measure its distance from O. What do you notice?

c) Compare your results with those of other students. What appears to be true about congruent chords in a circle?

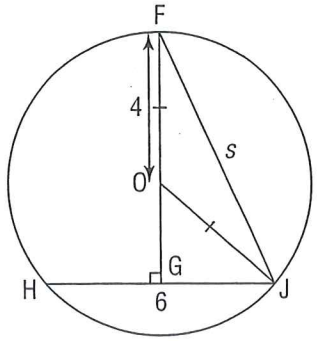
9. Trace a circular object to draw a circle without marking its centre. Draw two chords in the circle. Use what you have learned in this lesson to locate the centre of the circle. Justify your strategy.

10. Point O is the centre of each circle. Determine each value of s. Which circle properties did you use?

a)



b)



11. A circle has diameter 25 cm. How far from the centre of this circle is a chord 16 cm long? Justify your answer.

12. Assessment Focus

A circle has diameter 14 cm.

a) Which of the following measures could be lengths of chords in this circle? Justify your answers. How could you check your answers?

i) 5 cm ii) 9 cm

iii) 14 cm iv) 18 cm

b) For each possible length you identified in part a, determine how far the chord is from the centre of the circle.

Show your work. State which circle properties you used.

13. Draw and label a diagram to illustrate that the perpendicular to a chord from the centre of a circle bisects the chord.

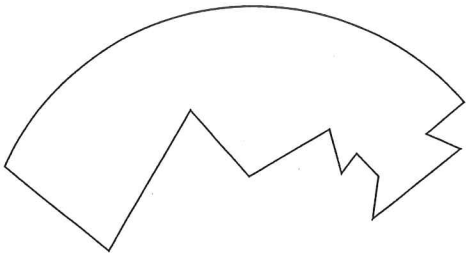
14. A chord is 6 cm long. It is 15 cm from the centre of a circle. What is the radius of the circle?

15. A circle has diameter 13 cm. In the circle, each of two chords is 8 cm long.

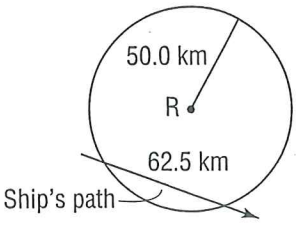
a) What is the shortest distance from each chord to the centre of the circle?

b) What do you notice about these congruent chords?

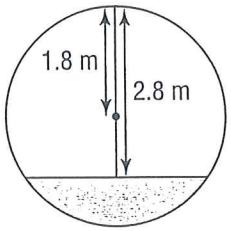
16. An archaeologist discovers a fragment of a circular plate on a dig at a prehistoric site. She wants to sketch the missing portion of the plate to determine how large it was. Trace the image of the plate fragment. Locate the centre of the plate. Use a compass to complete the sketch of the plate. Explain your work.



17. A radar station R tracks all ships in a circle with radius 50.0 km. A ship enters this radar zone and the station tracks it for 62.5 km until the ship passes out of range. What is the closest distance the ship comes to the radar station? Justify your answer.



18. A pedestrian underpass is constructed beneath a roadway using a cylindrical pipe with radius 1.8 m. The bottom of the pipe will be filled and paved. The headroom at the centre of the path is 2.8 m. How wide is the path?



Take It Further

19. A spherical fish bowl has diameter 26 cm. The surface of the water in the bowl is a circle with diameter 20 cm.

a) What is the maximum depth of the water?

b) How many different answers are there for part a? Explain.