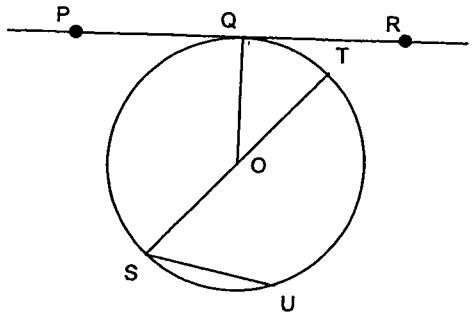
Grade 9 Math **7.1 & 7.2 Worksheet** **Name:** _____

Multiple Choice

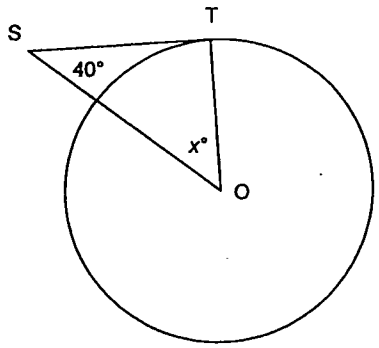
Identify the choice that best completes the statement or answers the question.

____ 1. O is the centre of this circle.
Which line is a tangent?



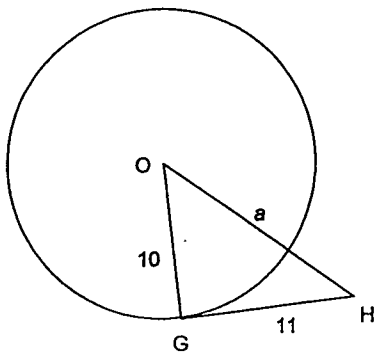
a. OQ b. ST c. PR d. SU

____ 2. O is the centre of this circle and point T is a point of tangency.
Determine the value of $x°$.



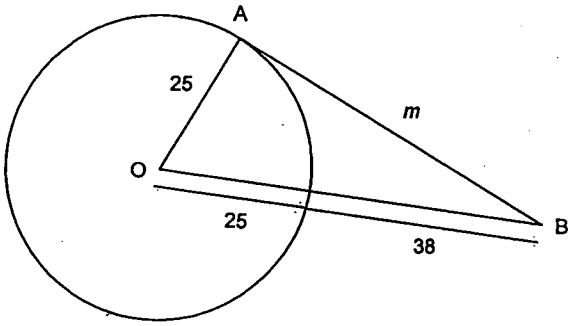
a. 90° b. 50° c. 130° d. 40°

____ 3. O is the centre of this circle and point G is a point of tangency.
Determine the value of *a*. If necessary, give your answer to the nearest tenth.



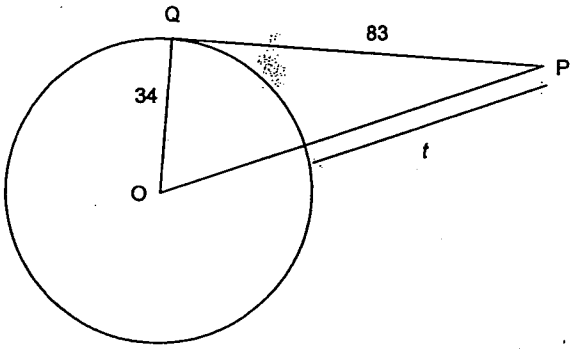
a. 11.3 b. 22.5 c. 4.6 d. 14.9

____ 4. O is the centre of this circle and point A is a point of tangency.
Determine the value of m. If necessary, give your answer to the nearest tenth.



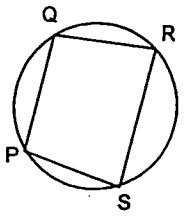
a. 38 b. 7.2 c. 67.8 d. 57.8

____ 5. O is the centre of this circle and point Q is a point of tangency.
Determine the value of t. If necessary, give your answer to the nearest tenth.



a. 61.3 b. 55.7 c. 55 d. 82.2

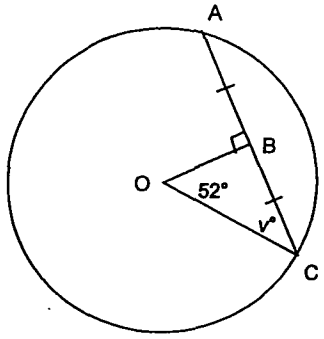
____ 6. Which of the following constructions would enable you to determine the centre of this circle?
i) Draw the perpendicular bisectors of PS and PQ.
ii) Join PR and QS.
iii) Join the mid-points of PS and QR and the mid-points of PQ and SR.



a. i and iii b. iii c. i d. ii

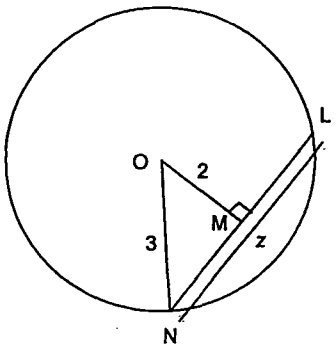
____ 7. A circle has radius 7 cm. Which of the following measures could NOT be the length of a chord in the circle: 2 cm, 11 cm, 14 cm, or 17 cm?
a. 17 cm
b. 11 cm
c. 2 cm
d. 14 cm

____ 8. O is the centre of the circle.
Determine the value of $v°$.



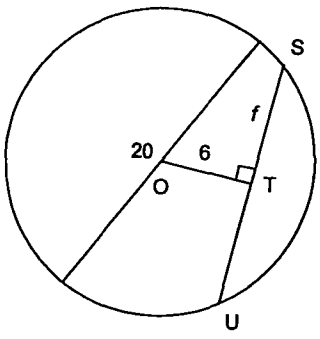
a. 19° b. 71° c. 52° d. 38°

____ 9. O is the centre of the circle.
Determine the value of z to the nearest tenth, if necessary.



a. 4.5 b. 3.6 c. 5 d. 1

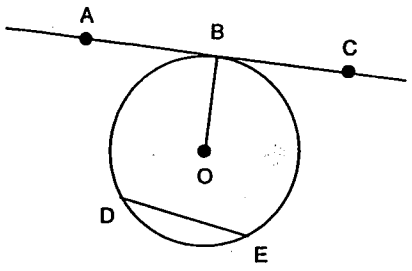
____ 10. O is the centre of the circle.
Determine the value of f to the nearest tenth, if necessary.



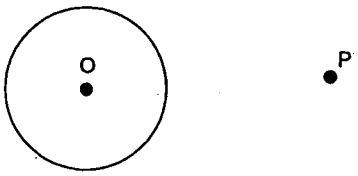
a. 4 b. 8 c. 64 d. 11.7

Short Answer

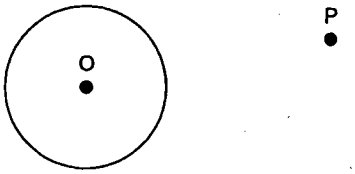
11. O is the centre of this circle.
Which line is a tangent?



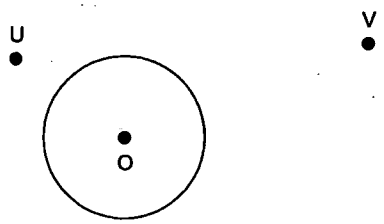
12. Draw a line through point P that is NOT a tangent to the circle.



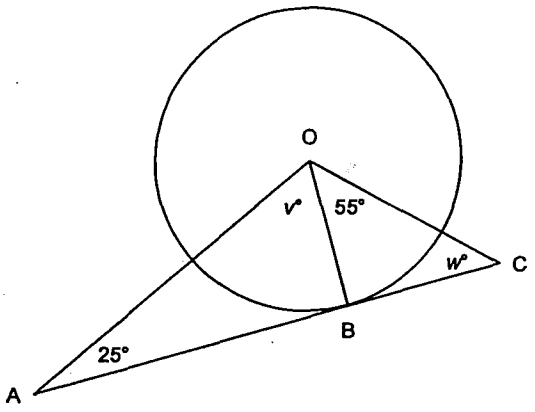
13. Draw a line through point P that is a tangent to the circle.
Label the point of tangency Q.



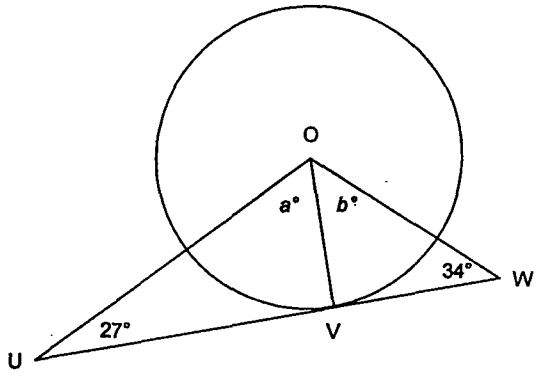
14. Is the line that passes through points U and V a tangent to the circle?



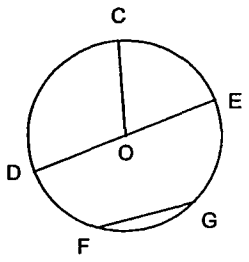
15. O is the centre of this circle and point B is a point of tangency.
Determine the values of $v°$ and $w°$.



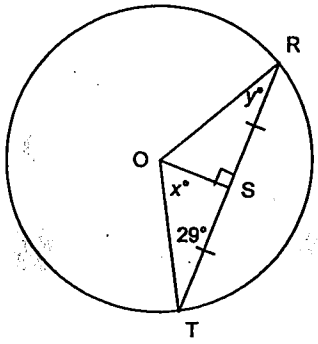
16. O is the centre of this circle and point V is a point of tangency.
Determine the values of $a°$ and $b°$.



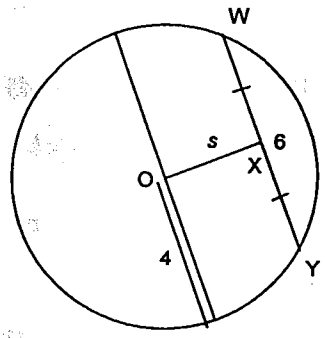
17. O is the centre of this circle.
Which line segment is a diameter?



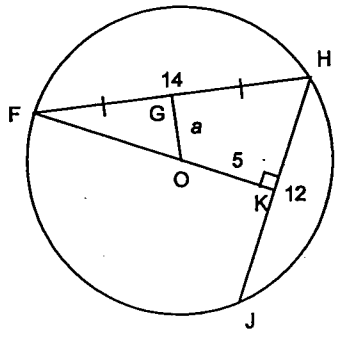
18. Point O is the centre of this circle.
Determine the values of $x°$ and $y°$.



19. Point O is the centre of this circle. Without solving for s, sketch and label the lengths of any extra line segments you need to draw to determine the value of s.

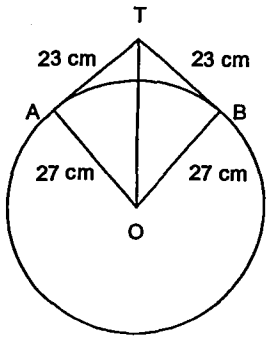


20. Point O is the centre of this circle.
Determine the value of a to the nearest whole number.

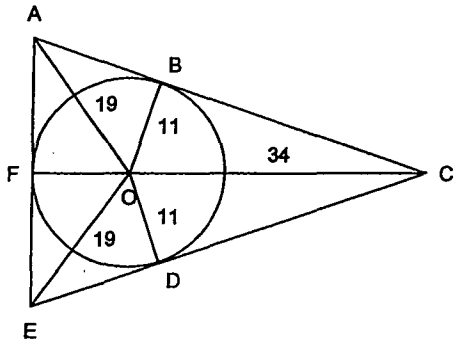


Problem

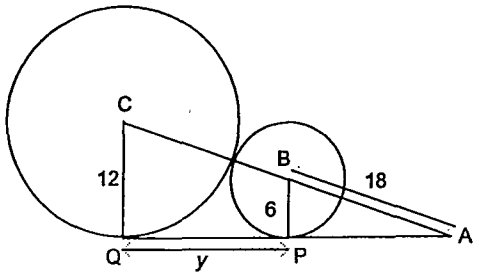
21. A circular mirror with radius 27 cm hangs from a hook.
The wire is 46 cm long and is a tangent to the circle at points A and B.
How far, to the nearest tenth, above the top of the mirror is the hook?



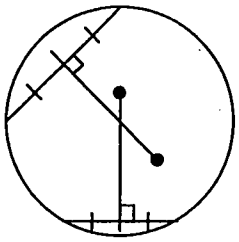
22. AC, AE, and CE are tangents to this circle. The points of tangency are: B, F, and D
The circle has radius 11. The distance from the centre of the circle to each vertex of the triangle is: OC = 34, OA = OE = 19
Determine the side lengths of ΔACE, to the nearest tenth.



23. AQ is a tangent to the circle with centre B and to the circle with centre C.
The points of tangency are P and Q.
Determine the value of y to the nearest tenth.



24. Draw a point at the centre of this circle. Label the point O.
How do you know your answer is correct?

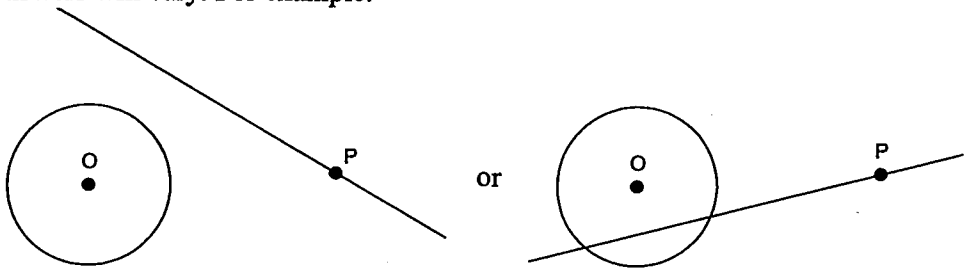


25. a) In a circle, can a chord be longer than a diameter of the circle? Explain.

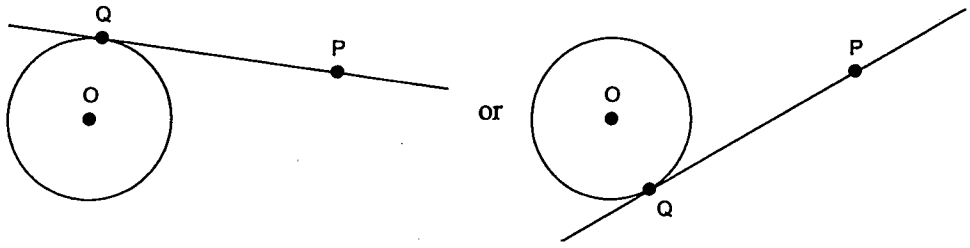
b) In a circle, can a chord be shorter than a radius of the circle? Explain.

7.1 & 7.2 Worksheet Answer Key

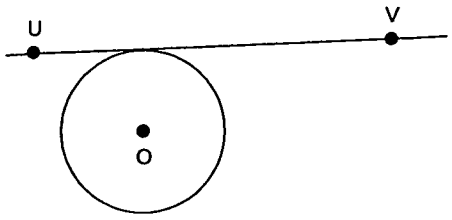
1. C
2. B
3. D
4. D
5. B
6. C
7. A
8. D
9. A
10. B
11. AC
12. Answers will vary. For example:



13.

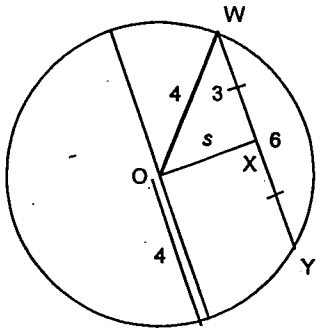


14. Yes.

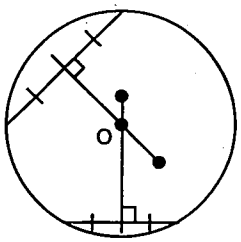


15. $v° = 65°$, $w° = 35°$

17. DE
18. $x° = 61°, y° = 29°$
19. Answers may vary. For example:



20. $a = 3$
21. So, the hook is about 8.5 cm above the mirror.
22. The triangle has side lengths of about 47.7, 47.7, and 31.6
23. $y \doteq 17.0$
24.



I know that the centre of the circle lies along the perpendicular bisector of a chord. So, when two different perpendicular bisectors are drawn, the centre of the circle is the point where they intersect.

25. a) No. A chord joins two points on a circle. Given one point on a circle, the point farthest from that point is on the opposite side of the circle. The line connecting these two points passes through the centre of the circle, so it is a diameter.

b) Yes. For example, in this circle, chord AB is shorter than radius OC.