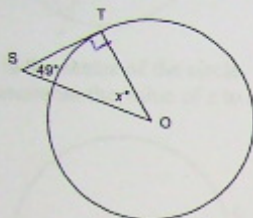


**Multiple Choice**

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

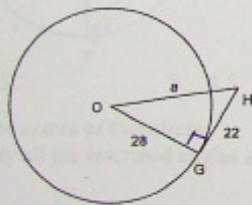
- D 1. O is the centre of this circle and point T is a point of tangency. Determine the value of  $x^\circ$ .



- a)  $90^\circ$                       b)  $139^\circ$   
 c)  $49^\circ$                       d)  $41^\circ$

$49 + 90 = 139^\circ$   
 $180^\circ - 139^\circ = 41^\circ$

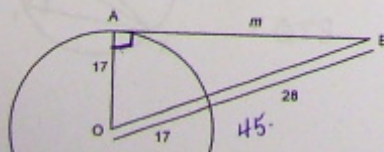
- D 2. O is the centre of this circle and point G is a point of tangency. Determine the value of  $a$ . If necessary, give your answer to the nearest tenth.



- a) 24.5                      b) 49  
 c) 17.3                      d) 35.6

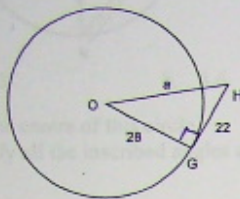
$c^2 = a^2 + b^2$   
 $c^2 = 28^2 + 22^2$   
 $c^2 = 784 + 484$   
 $c^2 = 1268$   
 $c = 35.6$

- C 3. 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) 28                      b) 8.1  
 c) 41.7                      d) 48.1

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) 24.5
- b) 49
- c) 17.3
- d) 5.6

$$c^2 = a^2 + b^2$$

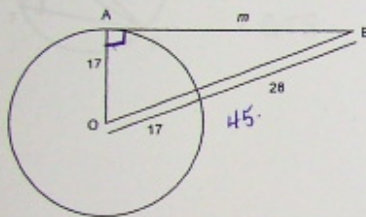
$$c^2 = 28^2 + 22^2$$

$$c^2 = 784 + 484$$

$$c^2 = 1268$$

$$c = 35.6$$

3. 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) 28
- b) 8.1
- c) 1.7
- d) 48.1

$$a^2 = c^2 - b^2$$

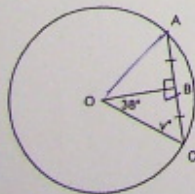
$$a^2 = 45^2 - 17^2$$

$$a^2 = 2025 - 289$$

$$\sqrt{a^2} = \sqrt{1736}$$

$$a = 41.67$$

4. O is the centre of the circle.  
 Determine the value of  $v^\circ$ .



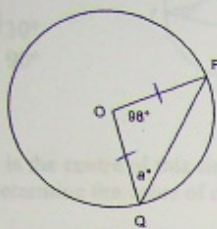
- a)  $26^\circ$
- b)  $52^\circ$
- c)  $64^\circ$
- d)  $38^\circ$

$$38 + 90 = 128$$

$$180 - 128 = 52^\circ$$

C

5. O is the centre of the circle. Determine the value of  $a^\circ$ .



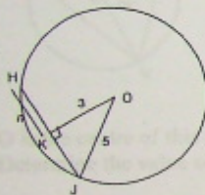
- a)  $49^\circ$
- b)  $20.5^\circ$
- c)  $41^\circ$
- d)  $69.5^\circ$

$$180 - 98 = 82$$

$$\frac{82}{2} = 41^\circ$$

B

6. O is the centre of the circle. Determine the value of  $n$  to the nearest tenth, if necessary.



- a) 16
- b) 4
- c) 2
- d) 5.8

$$a^2 = c^2 - b^2$$

$$a^2 = 5^2 - 3^2$$

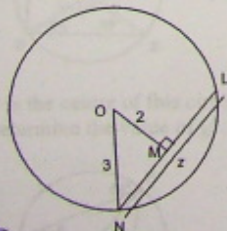
$$a^2 = 25 - 9$$

$$a^2 = 16$$

$$a = 4$$

A

7. 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

$$a^2 = c^2 - b^2$$

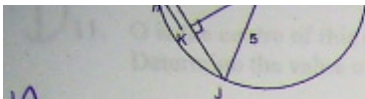
$$a^2 = 3^2 - 2^2$$

$$a^2 = 9 - 4$$

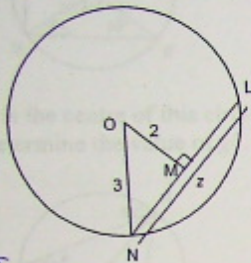
$$a^2 = 5$$

$$a = 2.24 \times 2 = 4.47$$



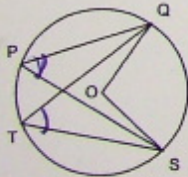


A 7. O is the centre of the circle.  
Determine the value of z to the nearest tenth, if necessary.



- C a. 4.5      b. 3.6

8. O is the centre of this circle.  
Identify all the inscribed angles subtended by the minor arc QS.



a.  $\angle QOS$

c.

$\angle QPS$  and  $\angle QTS$

$\angle QPS$

$\angle QTS$

$$a = c$$

$$a^2 = 5^2 - 3^2$$

$$a^2 = 25 - 9$$

$$a^2 = 16$$

$$a = 4$$

$$a^2 = c^2 - b^2$$

$$a^2 = 3^2 - 2^2$$

$$a^2 = 9 - 4$$

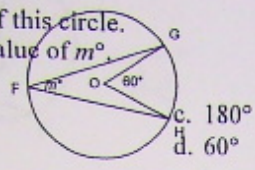
$$a^2 = 5$$

$$a = 2.24 \times 2 = 4.47$$

A

9. O is the centre of this circle.  
Determine the value of  $m^\circ$ .

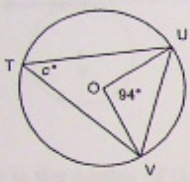
- a.  $30^\circ$
- b.  $90^\circ$



D

10. O is the centre of this circle.  
Determine the value of  $c^\circ$ .

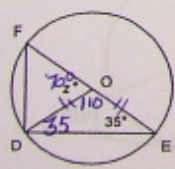
- a.  $180^\circ$
- b.  $94^\circ$
- c.  $90^\circ$
- d.  $47^\circ$



D

11. O is the centre of this circle.  
Determine the value of  $z^\circ$ .

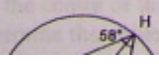
- a.  $55^\circ$
- b.  $110^\circ$
- c.  $90^\circ$
- d.  $70^\circ$



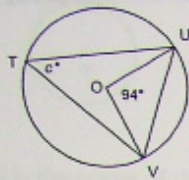
D

12. O is the centre of this circle.  
Determine the value of  $g^\circ$ .

- a.  $90^\circ$
- b.  $58^\circ$
- c.  $64^\circ$
- d.  $116^\circ$

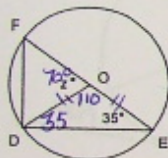


- D 10. O is the centre of this circle.  
Determine the value of  $c^\circ$ .



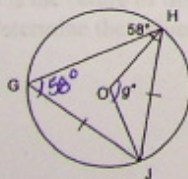
- a.  $180^\circ$   
b.  $94^\circ$   
c.  $90^\circ$   
d.  $47^\circ$

- D 11. O is the centre of this circle.  
Determine the value of  $z^\circ$ .



- a.  $55^\circ$   
b.  $110^\circ$   
c.  $90^\circ$   
d.  $70^\circ$

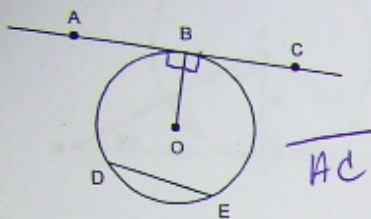
- D 12. O is the centre of this circle.  
Determine the value of  $g^\circ$ .



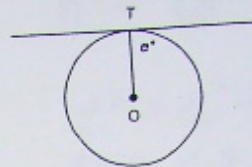
- a.  $90^\circ$   
b.  $58^\circ$   
c.  $64^\circ$   
d.  $116^\circ$

Short Answer

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

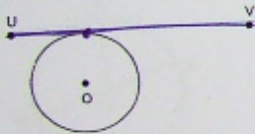


14. O is the centre of this circle. Point T is a point of tangency. What is the value of  $e^\circ$ ?



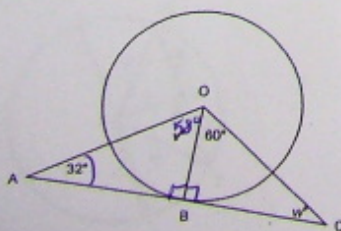
$90^\circ$

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



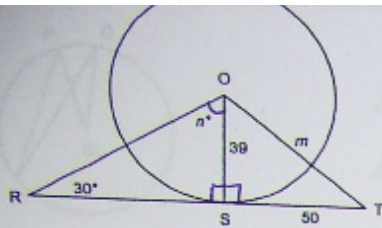
yes

16. O is the centre of this circle and point B is a point of tangency. Determine the values of  $v^\circ$  and  $w^\circ$ .



$v^\circ = 58^\circ$   
 $w^\circ = 30^\circ$





$$n^\circ = 60^\circ \quad m = 63.4$$

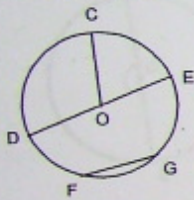
$$c^2 = a^2 + b^2$$

$$c^2 = 50^2 + 39^2$$

$$c^2 = 4021$$

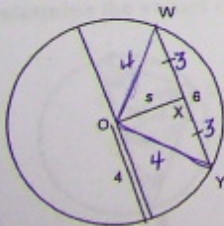
$$c = 63.4$$

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



DE

9. 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  $s$ .



$$a^2 = c^2 - b^2$$

$$a^2 = 4^2 - 3^2$$

$$a^2 = 16 - 9$$

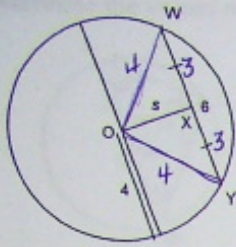
$$\sqrt{a^2} = \sqrt{7}$$

$$a = 2.6$$

$$s = \underline{\underline{2.6}}$$



Sketches you need to draw to determine the value of s.



$$a^2 = c^2 - b^2$$

$$a^2 = 4^2 - 3^2$$

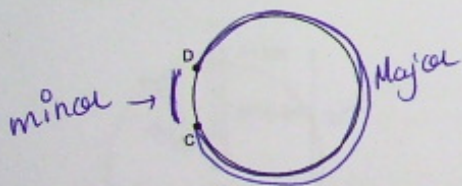
$$a^2 = 16 - 9$$

$$\sqrt{a^2} = \sqrt{7}$$

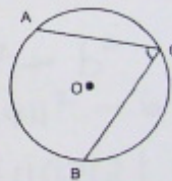
$$a = 2.6$$

$$s = \underline{\underline{2.6}}$$

20. Label the major arc CD and the minor arc CD of this circle.



21) O is the centre of this circle. Is  $\angle ACB$  a central angle or an inscribed angle?



Inscribed 😊

22. O is the centre of this circle.

In this circle, identify the inscribed angle and the central angle subtended by the same minor arc.



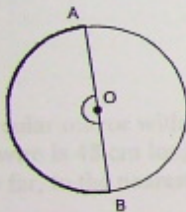
$\angle POQ$  Central  
 $\angle PRQ$  Inscribed

23. Point O is the centre of the circle.

Arc AB is a semicircle.

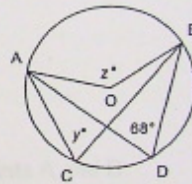
What is the measure of  $\angle AOB$ ?

$180^\circ$



24. O is the centre of this circle.

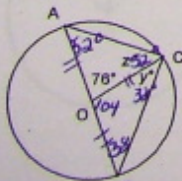
Determine the values of  $y^\circ$  and  $z^\circ$ .



$y^\circ = 68^\circ$   
 $z^\circ = 136^\circ$

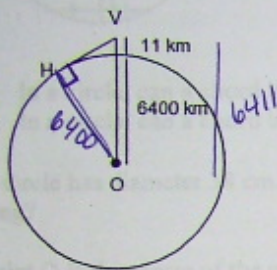
25. Point O is the centre of the circle.

Determine the values of  $y^\circ$  and  $z^\circ$ .



$z^\circ = 52^\circ$   
 $y^\circ = 38^\circ$

26. A Ruppell's Griffon Vulture holds the record for the bird with the highest documented flight altitude. It was spotted at a height of about 11 km above the Earth's surface. The radius of Earth is approximately 6400 km. How far was the vulture from the horizon, H? Calculate this distance to the nearest kilometre.



$$a^2 = c^2 - b^2$$

$$a^2 = 6411^2 - 6400^2$$

$$a^2 = 41100921 - 40960000$$

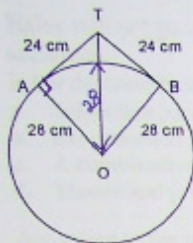
$$a^2 = 140921$$

$$a = 375.4 \text{ km}$$

$$375 \text{ km}$$



27. A circular mirror with radius 28 cm hangs from a hook. The wire is 48 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?



$$c^2 = a^2 + b^2$$

$$c^2 = 24^2 + 28^2$$

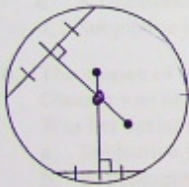
$$c^2 = 576 + 784$$

$$\sqrt{c^2} = \sqrt{1360}$$

$$c = 36.9 - 28$$

8.9 cm

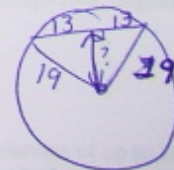
28. Draw a point at the centre of this circle. Label the point O. How do you know your answer is correct?



The lines perpendicular to a chord always run through the center. Therefore they will intersect in the middle/centre Point O.

29. a) In a circle, can a chord be longer than a diameter of the circle? Explain.  $\rightarrow$  No diameter is the longest chord in a circle.  
 b) In a circle, can a chord be shorter than a radius of the circle? Explain.   
 yes
30. A circle has diameter 38 cm. How far from the centre of the circle, to the nearest centimetre, is a chord 26 cm long?
32. Point O is the centre of the circle. Determine the values of  $x^\circ$ ,  $y^\circ$ , and  $z^\circ$ .

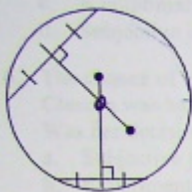
30.



$$x^\circ = 170^\circ$$

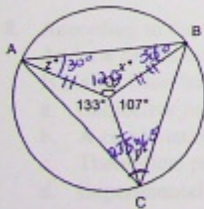


28. Draw a point at the centre of this circle. Label the point O.  
How do you know your answer is correct?



The lines perpendicular to a chord always run through the center. Therefore they will intersect in the middle/centre Point O.

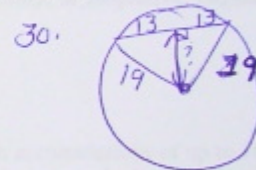
29. a) In a circle, can a chord be longer than a diameter of the circle? Explain.  $\rightarrow$  No diameter is the longest chord in a circle.  
 b) In a circle, can a chord be shorter than a radius of the circle? Explain.   
 30. A circle has diameter 38 cm. How far from the centre of the circle, to the nearest centimetre, is a chord 26 cm long?  
 32. Point O is the centre of the circle. Determine the values of  $x^\circ$ ,  $y^\circ$ , and  $z^\circ$ .



$$x^\circ = 120^\circ$$

$$z^\circ = 38^\circ$$

$$y^\circ = 23.5 + 36.5 = 60^\circ$$



$$a^2 = c^2 - b^2$$

$$a^2 = 19^2 - 13^2$$

$$a^2 = 361 - 169$$

$$\sqrt{a^2} = \sqrt{192}$$

$$a = 13.9 \text{ cm}$$