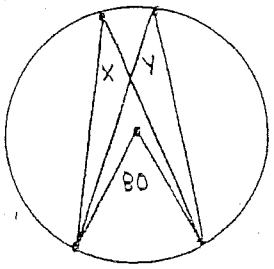
Unit 7 Review

Name: Key

Section A: Mastery Questions

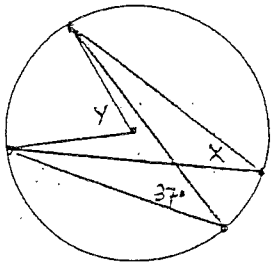
Find the missing angle or sides using circle properties. (1 each)

1.



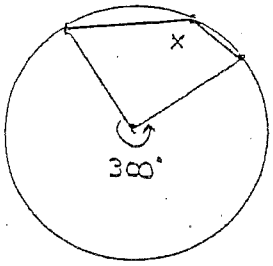
X = 40°
Y = 40°

2.



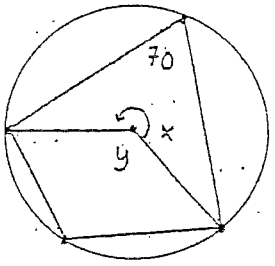
X = 37°
Y = 74°

3.



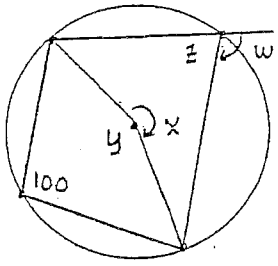
X = 150°

4.



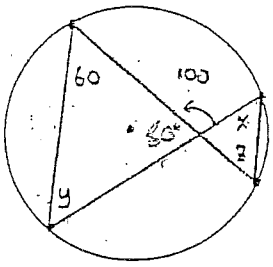
X = 220°
Y = 140°

5.



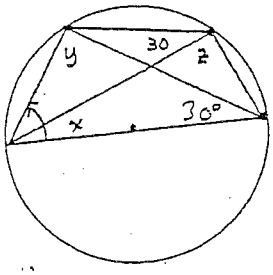
W = 100°
X = 200°
Y = 160°
Z = 80°

6.



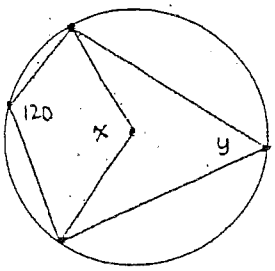
X = 60°
Y = 40°
Z = 40°

7.



X = 60°
Y = 90°
Z = 90°

8.

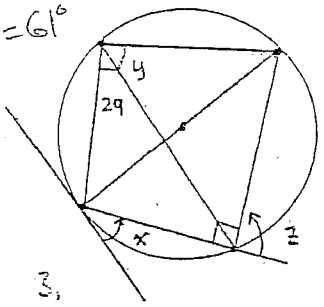


X = 120°
y = 60°

Section B: Regular Questions

Find the missing angle or sides using circle properties. (1 each)

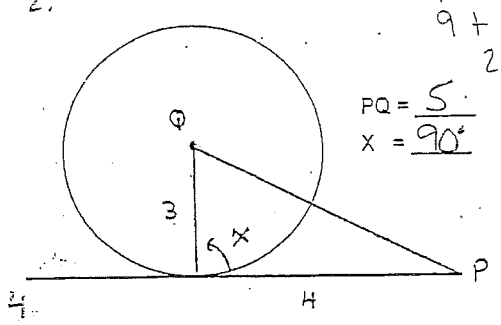
1.



$90-29=61^\circ$

X = 29°
Y = 61°
Z = 90°

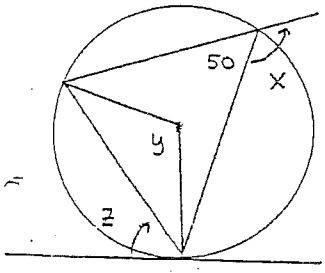
2.



$3^2+4^2=(PQ)^2$
$9+16=PQ^2$
$25=PQ^2$

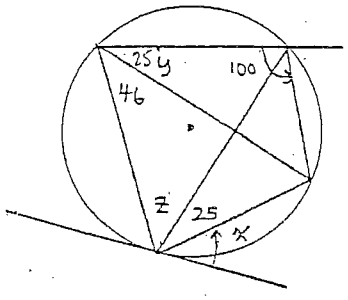
PQ = 5
X = 90°

3.



X = 130°
Y = 100°
Z = 50°

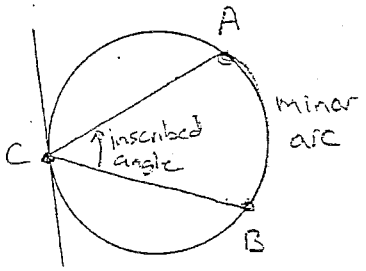
4.



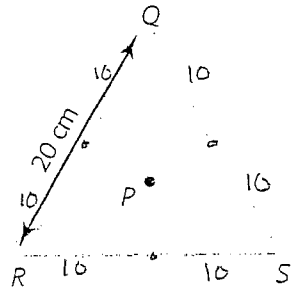
X = 46°
Y = 25°
Z = 55°

5. Draw and label each of the following parts on the circle provided.

i. minor arc AB
ii. inscribed angle ACB
iii. tangent line GH with a point of tangency at C



6. Two circles have a common centre P. Three chords in the larger circle are tangent to the smaller circle and form Δ QRS. Determine the perimeter of the triangle. (2 marks)



$P = 10+10+10+10+10+10$

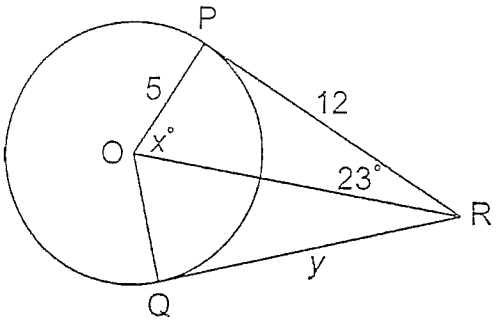
$P = 60\text{cm}$

$P = 60\text{ cm}$

16

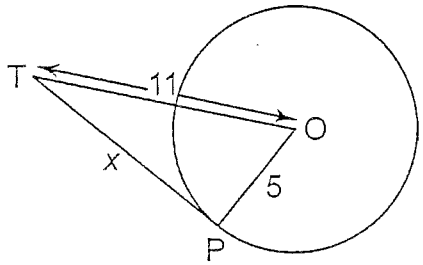
Pm 9 Chapter 9 Review 1 Name:_____

1)



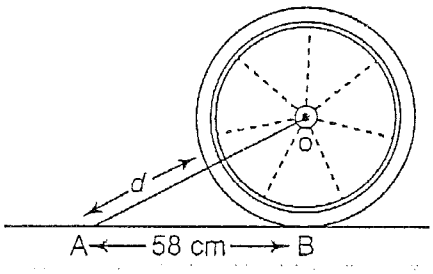
$\angle x = 67°, y = 12$

2)



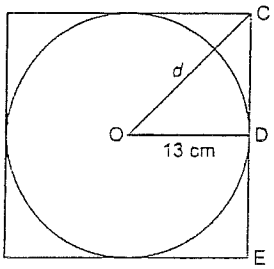
9.8

A wheel has radius 30 cm. It rolls along the ground toward a tack that is 58 cm from the point where the wheel currently touches the ground. What is the distance, *d*, between the tack and the closest point on the circumference of the wheel? Give the answer to the nearest tenth of a centimetre.



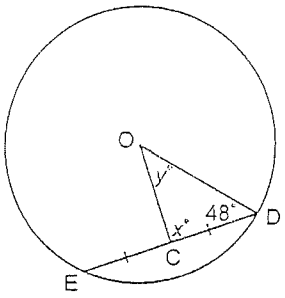
d = 35.30

4) A circular plate has radius 13 cm. It is packed in a square cardboard frame whose 4 edges just touch the plate. What is the distance, *d*, from the centre of the plate to a corner of the frame? Give the answer to the nearest tenth of a centimetre.



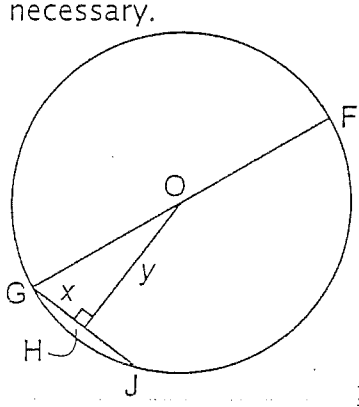
d = 18.38

5) Point O is the centre of the circle. Determine the values of $x°$ and $y°$.



$\angle x = 90°, \angle y = 42°$

6) Point O is the centre of the circle; OF = 18 cm; and GJ = 14 cm. Determine the values of x and y to the nearest tenth of a centimetre where necessary.



x = 7, y = 16.58

7) A circle has diameter 22 cm. Two chords are drawn on opposite sides of the centre of the circle. One chord is 16 cm long and the other chord is 12 cm long.

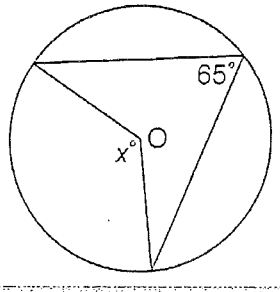
a) Which chord is closer to the centre of the circle?

b) How much closer to the centre is this chord?

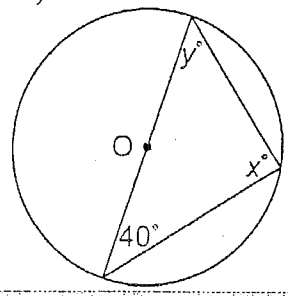
1.67 cm closer

8) Point O is the centre of each circle. Determine the values of $x°$ and $y°$. Justify your solutions.

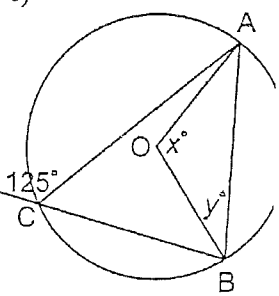
a)



b)

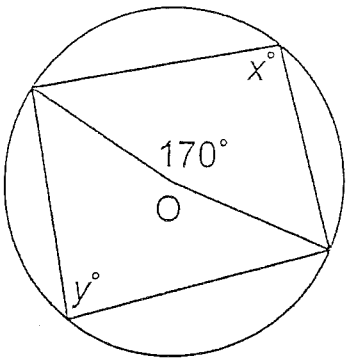


c)



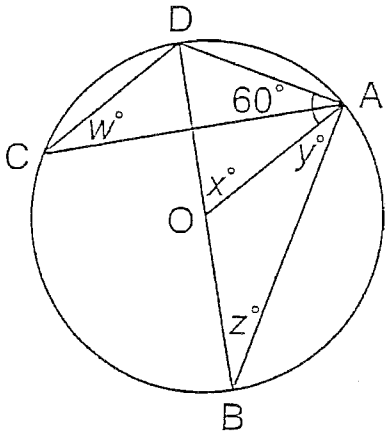
a) $\angle x = 130°$ b) $\angle x = 90°, \angle y = 50°$ c) $\angle x = 110°, \angle y = 35°$

9)



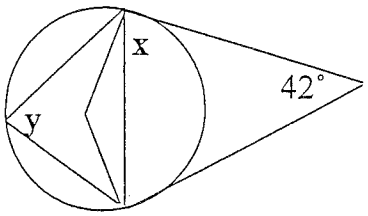
$\angle x = 95°, \angle y = 85°$

10)



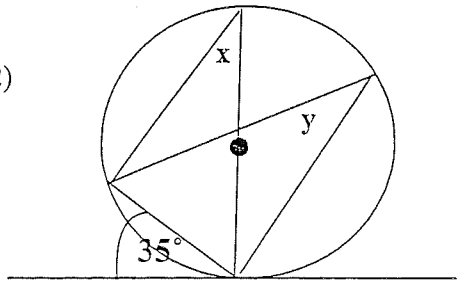
$\angle x = 60°, \angle y = \angle z = \angle w = 30°$

11)



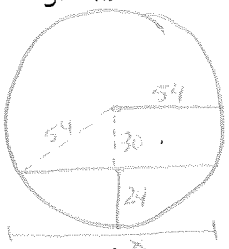
$\angle x = 69°, \angle y = 69°$

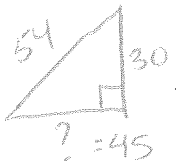
12)



$\angle x = 35°, \angle y = 35°$

7. The depth of water in a circular pipe of radius 54 cm is 24 cm. What is the width of the water's surface across the pipe to the nearest centimetre? Include a diagram. (3 marks)



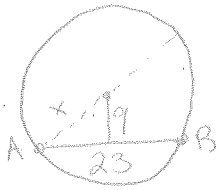


$54^2 - 30^2 = a^2$

$\sqrt{a^2} = 44.9$

90cm

8. A circle has a chord AB 23cm in length and 9cm from the center. What is the diameter of the circle? Include a diagram. (3 marks)

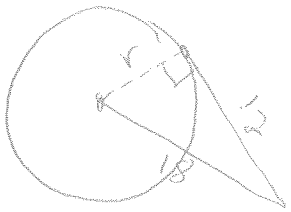


$9^2 + 11.5^2 = x^2$

$x = 14.6$

$d = 29.2$ cm

9. A tangent segment is 12cm long and the exterior point is 18cm from the center. Calculate the radius. Include a diagram. (3 marks)



$18^2 - 12^2 = r^2$

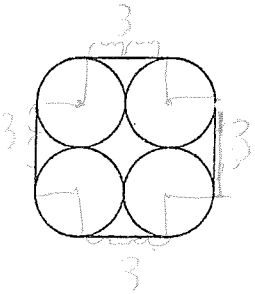
$\sqrt{180} = \sqrt{r^2}$

$r = 13.4$

$r = 13.4$ cm

Bonus:

Four fluorescent light bulb tubes of diameter 3 cm are tied together into a bundle with a piece of string, as shown in the diagram. What is the shortest piece of string needed if an extra 10 cm of string is needed for tying the knot?



Perimeter = 10 + 12 + 10

$C = \pi d = 9.42$

$9.42 + 12$

$= 21.42$ cm + 10

$= 31.42$ cm