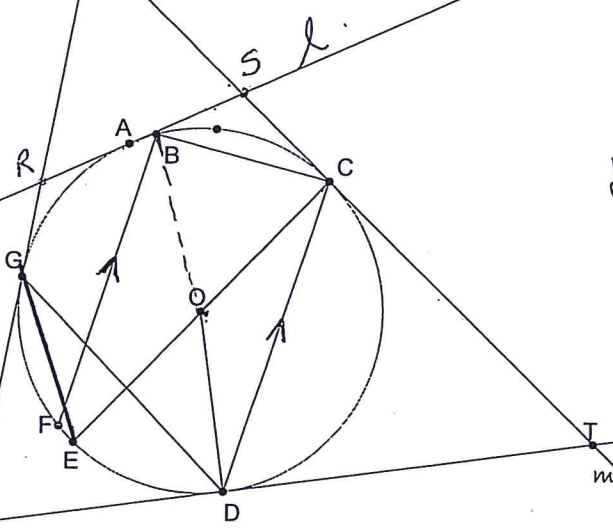


Lines l, m, n, and p are tangent to circle O (O is the center)

*diameter*

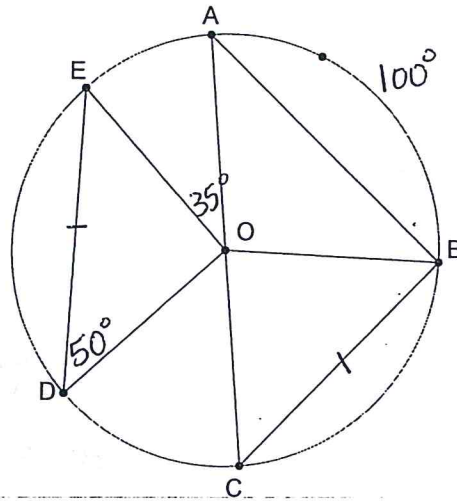
$m\widehat{BC} = 60^\circ$   
 $\overline{EC} = 12$  cm  
 $\overline{UR} = 11$  cm  
 $\overline{SC} = 6$  cm

$m\widehat{DC} = 125^\circ$   
 $\overline{DT} = 10$  cm  
 $\overline{RA} = 4$  cm



- 1)  $m\angle DOC =$  \_\_\_\_\_
- 2)  $m\widehat{FD} =$  \_\_\_\_\_
- 3)  $m\widehat{FE} =$  \_\_\_\_\_
- 4)  $m\angle DOE =$  \_\_\_\_\_
- 5)  $m\angle CTD =$  \_\_\_\_\_
- 6)  $m\angle ECB =$  \_\_\_\_\_
- 7) perimeter of DTCE = \_\_\_\_\_
- 8) Are  $\overline{FB}$  and  $\overline{CD}$  congruent?  
Why or why not?
- 9) Are  $\overline{OC}$  and  $\overline{CB}$  congruent?  
Why or why not?
- 10) perimeter of UTSR = \_\_\_\_\_
- 11)  $m\angle EGD =$  \_\_\_\_\_
- 12)  $m\angle DCB =$  \_\_\_\_\_

- $m\angle EOD =$  \_\_\_\_\_
- $m\angle OBC =$  \_\_\_\_\_
- $m\angle ABC =$  \_\_\_\_\_
- $m\widehat{DC} =$  \_\_\_\_\_
- $m\angle ACB =$  \_\_\_\_\_



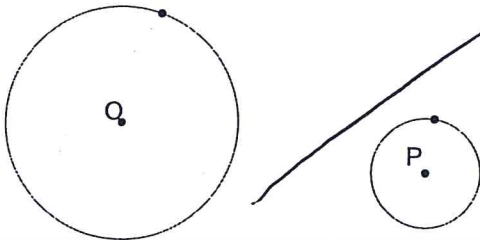
*O is the center*

Sketch the following:

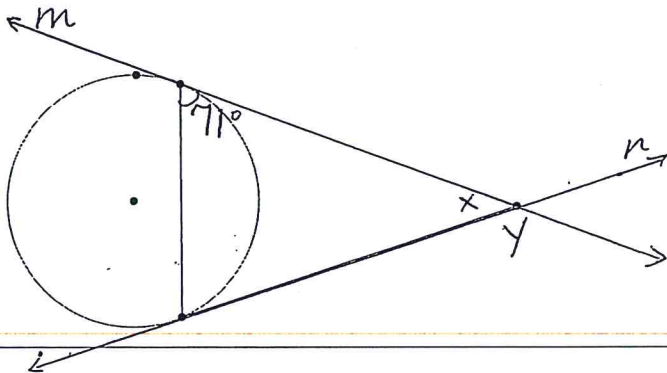
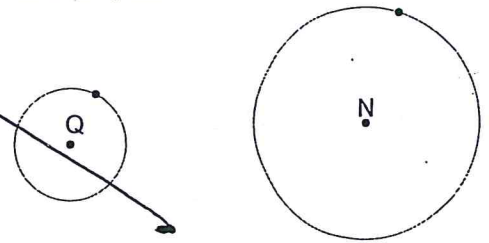
6) Externally tangent circles

7) Internally tangent circles

8) Common internal tangent AB and common external tangent CD.



9) Three externally common tangents to circles Q and N.



10) Lines m and n are tangent lines.

Find x and y.

x =

y =