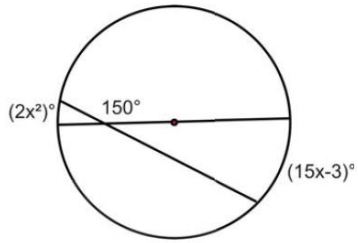
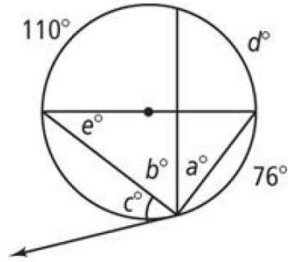


For #1 – 3, please solve for all indicated variables.

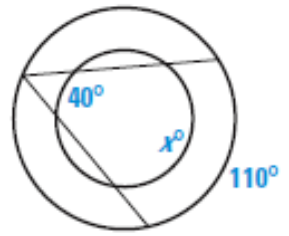
1.



2.

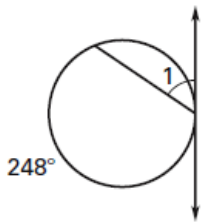


3.

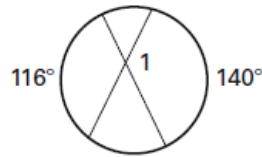


For #4 – 12, please solve for  $m\angle 1$ .

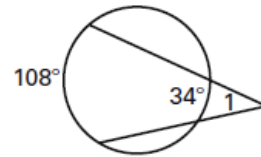
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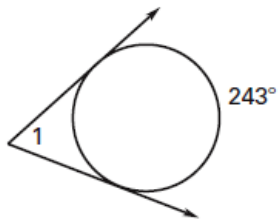
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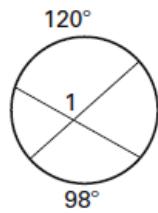
6.



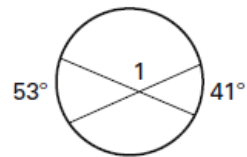
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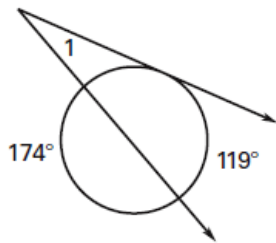
8.



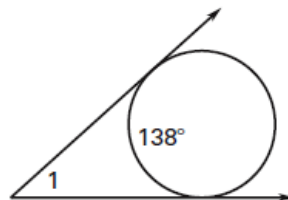
9.



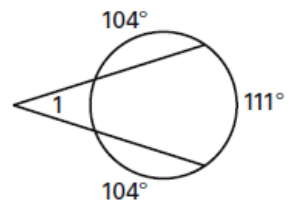
10.



11.

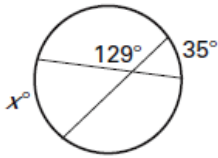


12.

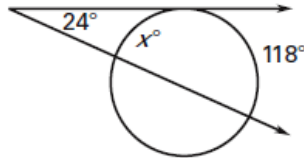


For #13 – 18, please solve for x.

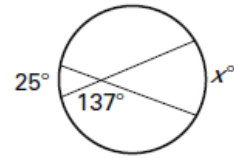
13.



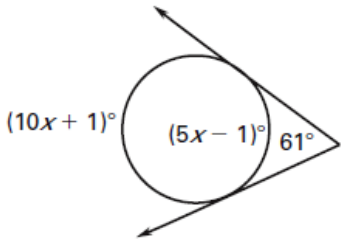
14.



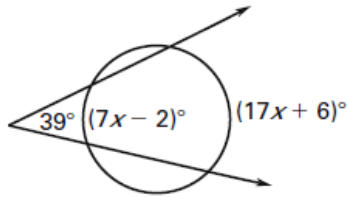
15.



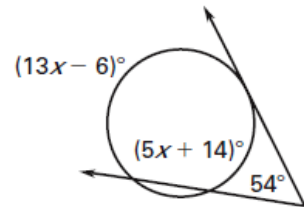
16.



17.



18.



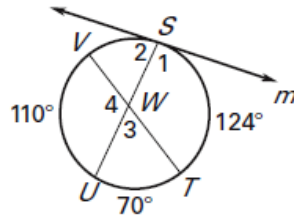
Use the diagram below to find the measures of the numbered angles. Line  $m$  is tangent to the circle at point  $S$ .

19.  $m\angle 1 =$  \_\_\_\_\_

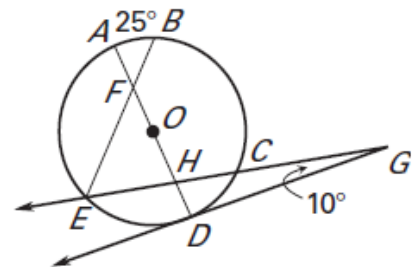
$m\angle 2 =$  \_\_\_\_\_

$m\angle 3 =$  \_\_\_\_\_

$m\angle 4 =$  \_\_\_\_\_



20. In the figure below,  $\overline{AD}$  is a diameter,  $m\angle A = 25^\circ$ ,  $m\angle C = 40^\circ$ , and  $m\angle EGD = 10^\circ$ . Please find  $m\angle AFB$ .



### Answer Key

1. 3

2.  $a=35^\circ$ ,  $b=55^\circ$ ,  $c=52^\circ$ ,  $d=70^\circ$

3.  $150^\circ$    4.  $56^\circ$    5.  $128^\circ$

6.  $37^\circ$    7.  $63^\circ$    8.  $109^\circ$

9.  $133^\circ$    10.  $26^\circ$    11.  $42^\circ$

12.  $35^\circ$    13. 67   14. 70

15. 61   16. 24   17. 7

18. 16

19.  $97^\circ$ ,  $83^\circ$ ,  $63^\circ$ ,  $117^\circ$

20.  $42.5^\circ$