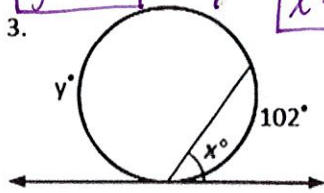
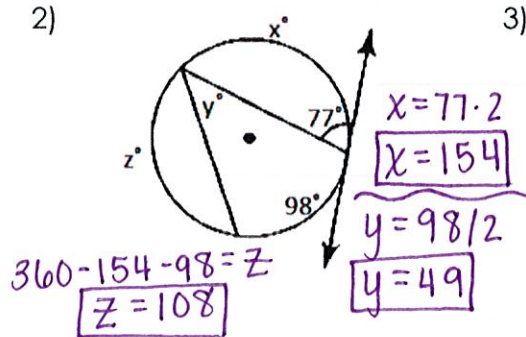


Angle Relationships

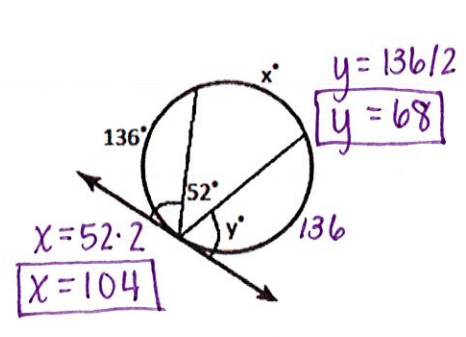
1) $360 - 102 = y$ } $102/2 = x$ 2)
 $y = 258$ } $x = 51$



$x = 51^\circ$ $y = 258^\circ$

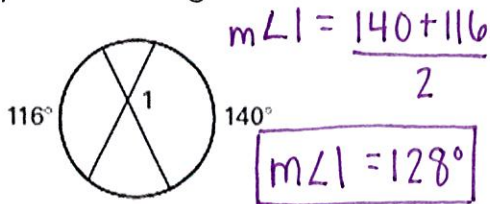


$360 - 154 - 98 = z$
 $z = 108$
 $x = 77 \cdot 2$
 $x = 154$
 $y = 98/2$
 $y = 49$
 $x = 154^\circ$ $y = 49^\circ$ $z = 108^\circ$



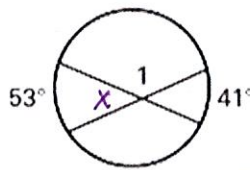
$y = 136/2$
 $y = 68$
 $x = 52 \cdot 2$
 $x = 104$
 $x = 104^\circ$ $y = 68^\circ$

4) Solve for Angle 1.



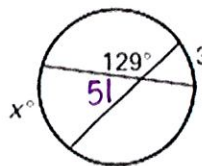
$m\angle 1 = \frac{140 + 116}{2}$
 $m\angle 1 = 128^\circ$

5) Solve for Angle 1.



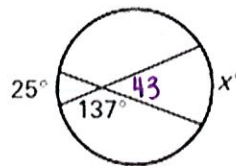
$x = \frac{53 + 41}{2}$
 $x = 47$
 $m\angle 1 = 180 - 47$
 $m\angle 1 = 133^\circ$

6) Solve for x.



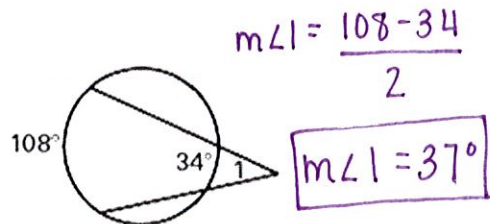
$180 - 129 = 51$
 $2 \cdot \frac{x + 35}{2} = 51 \cdot 2$
 $x + 35 = 102$
 $-35 \quad -35$
 $x = 67^\circ$

7) Solve for x.



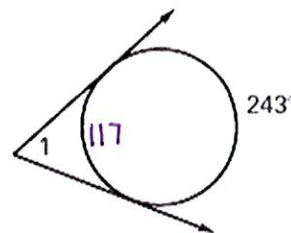
$180 - 137 = 43$
 $2 \cdot \frac{x + 25}{2} = 43 \cdot 2$
 $x + 25 = 86$
 $-25 \quad -25$
 $x = 61^\circ$

8) Solve for Angle 1.



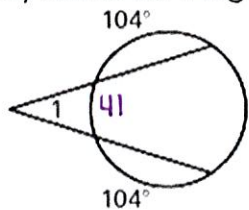
$m\angle 1 = \frac{108 - 34}{2}$
 $m\angle 1 = 37^\circ$

9) Solve for Angle 1.



$360 - 243 = 117$
 $m\angle 1 = \frac{243 - 117}{2}$
 $m\angle 1 = 63^\circ$

10) Solve for Angle 1.

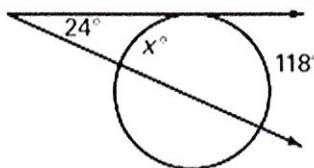


$$360 - 111 - 104 - 104 = 41$$

$$m\angle 1 = \frac{111 - 41}{2}$$

$$m\angle 1 = 35^\circ$$

11) Solve for x.



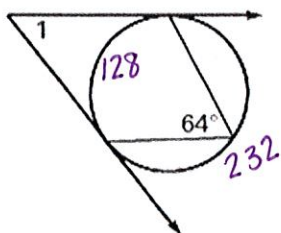
$$2 \cdot \frac{118 - x}{2} = 24 \cdot 2$$

$$118 - x = 48$$

$$-x = -70$$

$$x = 70^\circ$$

12) Solve for Angle 1.

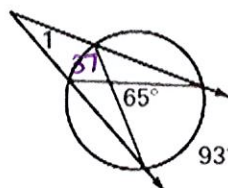


$$360 - 128 = 232$$

$$m\angle 1 = \frac{232 - 128}{2}$$

$$m\angle 1 = 52^\circ$$

13) Solve for Angle 1.



$$2 \cdot \frac{93 + x}{2} = 65 \cdot 2$$

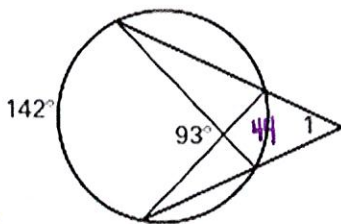
$$93 + x = 130$$

$$x = 37$$

$$m\angle 1 = \frac{93 - 37}{2}$$

$$m\angle 1 = 28^\circ$$

14) Solve for Angle 1.



$$2 \cdot \frac{142 + x}{2} = 93 \cdot 2$$

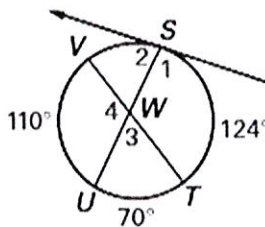
$$142 + x = 186$$

$$x = 44$$

$$m\angle 1 = \frac{142 - 44}{2}$$

$$m\angle 1 = 49^\circ$$

15) Find the measure of all numbered angles.



$$m\angle 1 = \frac{124 + 70}{2}$$

$$m\angle 1 = 97^\circ$$

$$m\angle 2 = 180 - 97$$

$$m\angle 2 = 83^\circ$$

$$m\angle 4 = \frac{124 + 110}{2}$$

$$m\angle 4 = 117^\circ$$

$$m\angle 3 = 180 - 117$$

$$m\angle 3 = 63^\circ$$