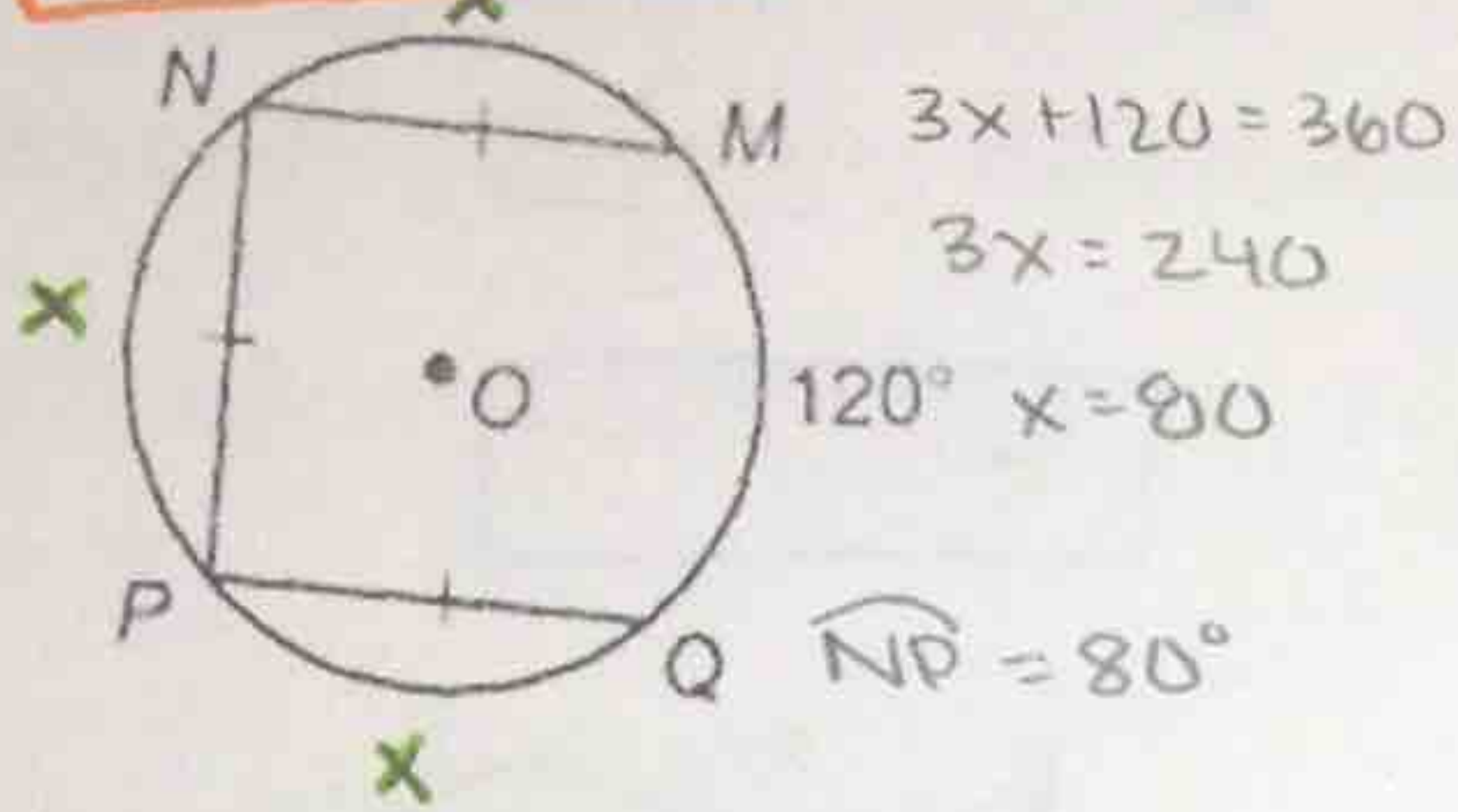
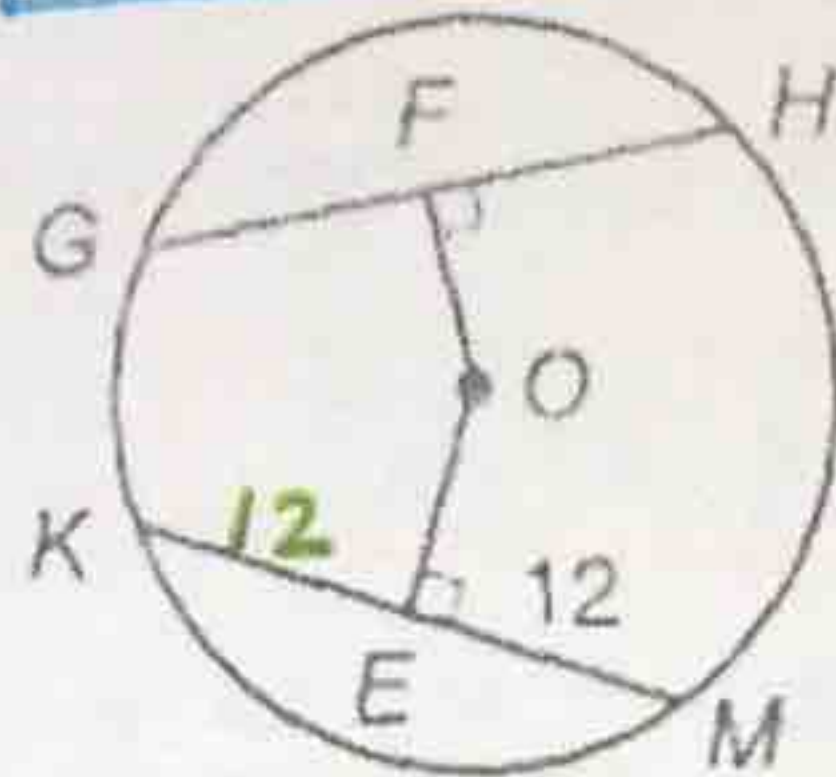


In each circle, O is the center. Find each measure.

1.  $m\widehat{NP} = 80^\circ$

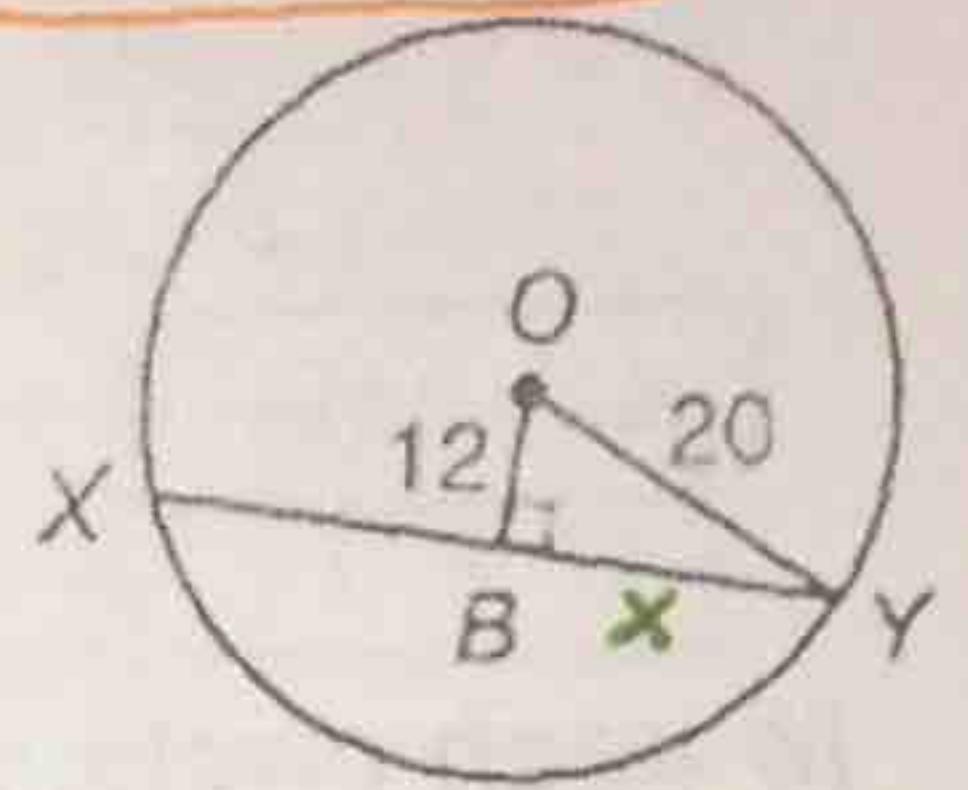


2.  $KM = 24$

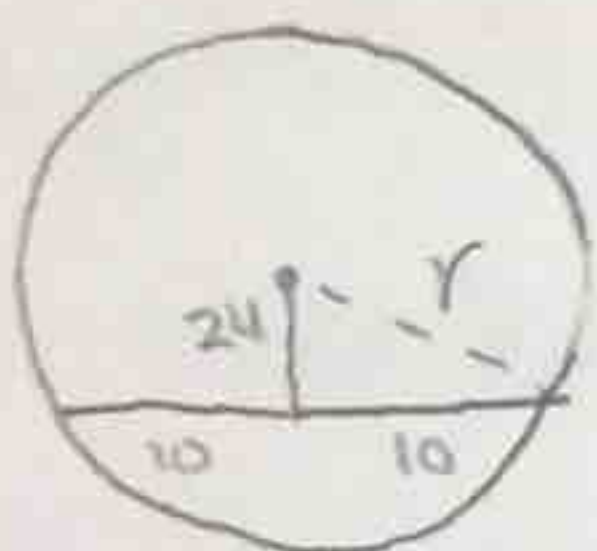


$x^2 + 12^2 = 20^2$   
 $x^2 = 256$   
 $x = 16$   
 $\overline{KM} = 32$

3.  $XY = 32$

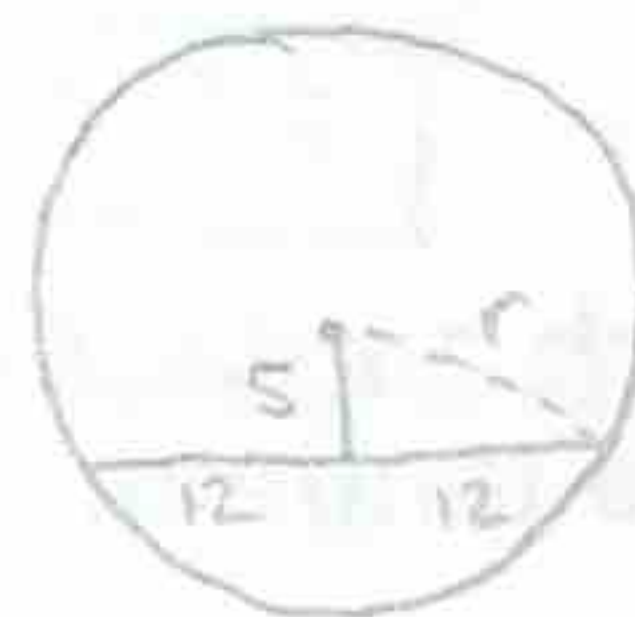


4. Suppose a chord is 20 inches long and is 24 inches from the center of the circle. Find the length of the radius.



$10^2 + 24^2 = r^2$   
 $676 = r^2$   
 $r = 26$

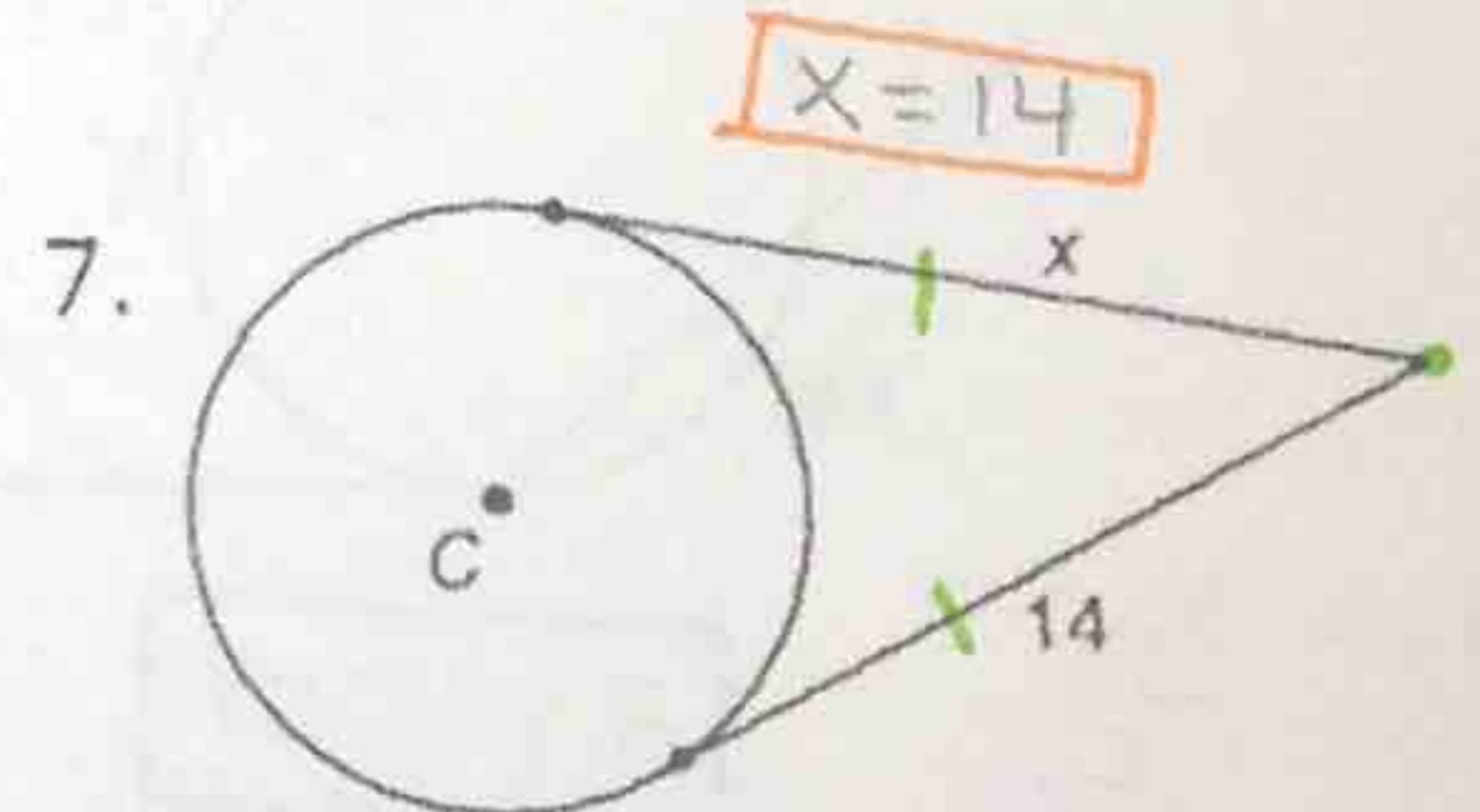
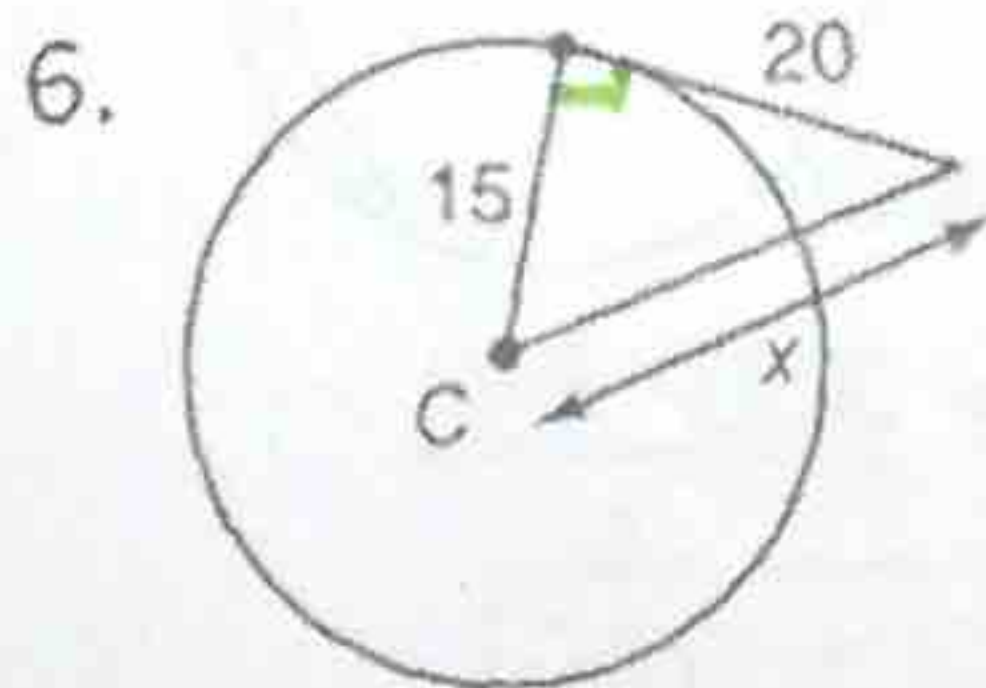
5. Suppose a chord of a circle is 5 inches from the center and is 24 inches long. Find the length of the radius.



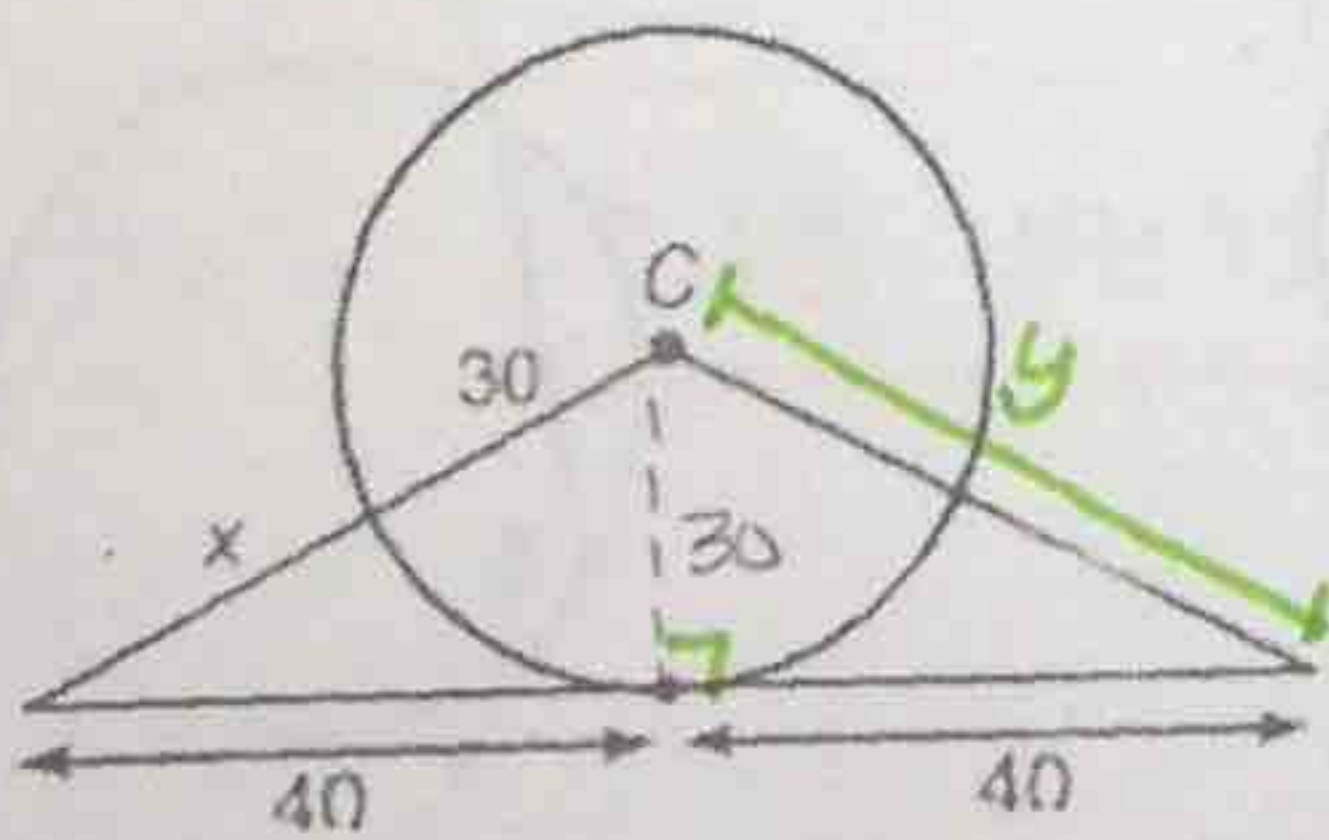
$5^2 + 12^2 = r^2$   
 $r^2 = 169$   
 $r = 13$

For each in circle C, find the value of x. Assume segments that appear to be tangent are tangent.

$15^2 + 20^2 = x^2$   
 $625 = x^2$   
 $x = 25$

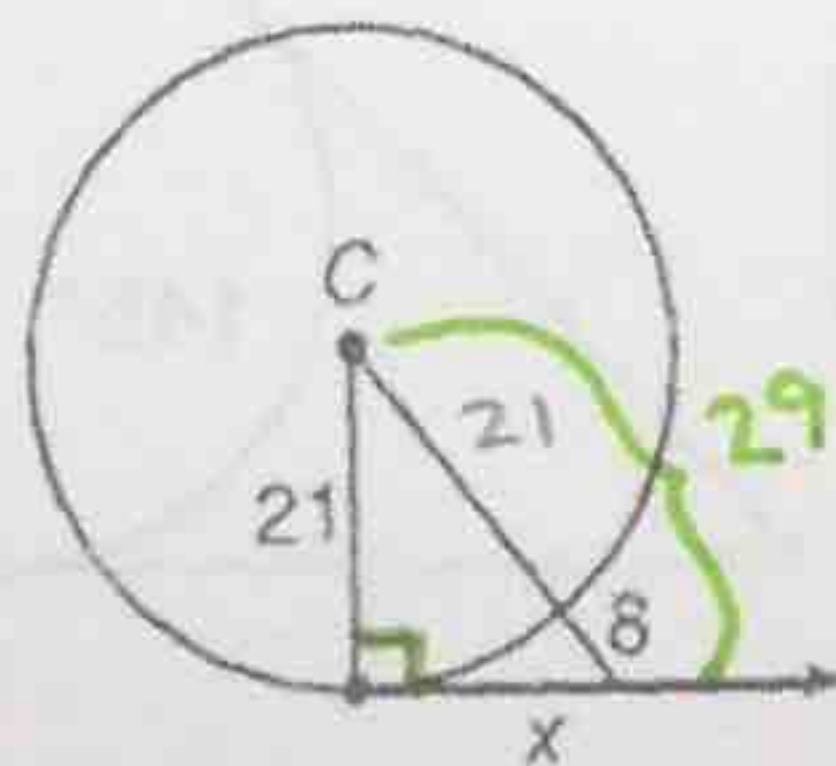


8.



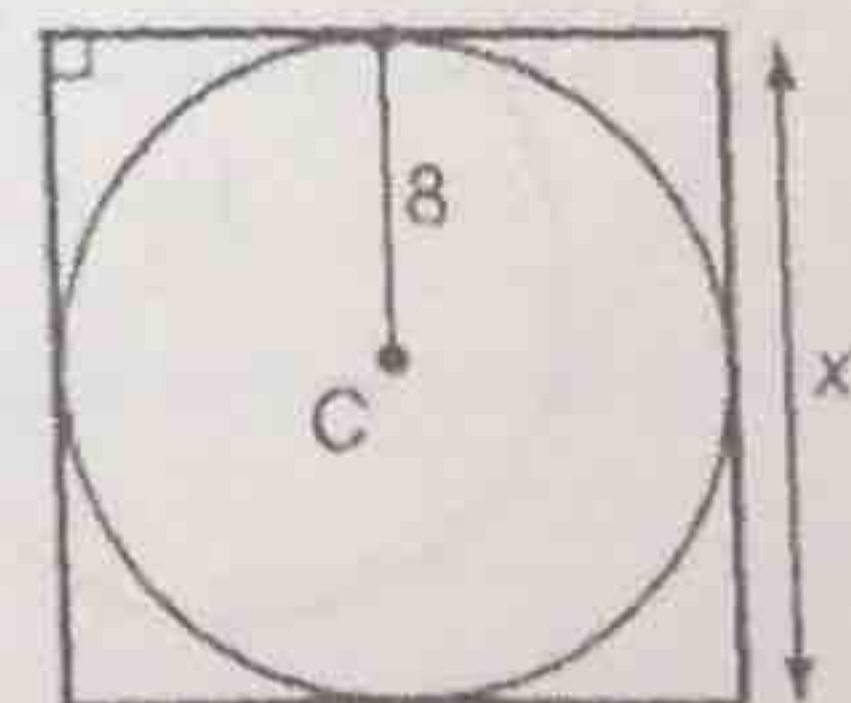
$30^2 + 40^2 = y^2$   
 $2500 = y^2$   
 $y = 50$   
 $x + 30 = 50$   
 $x = 20$

9.



$x^2 + 21^2 = 29^2$   
 $x^2 = 400$   
 $x = 20$

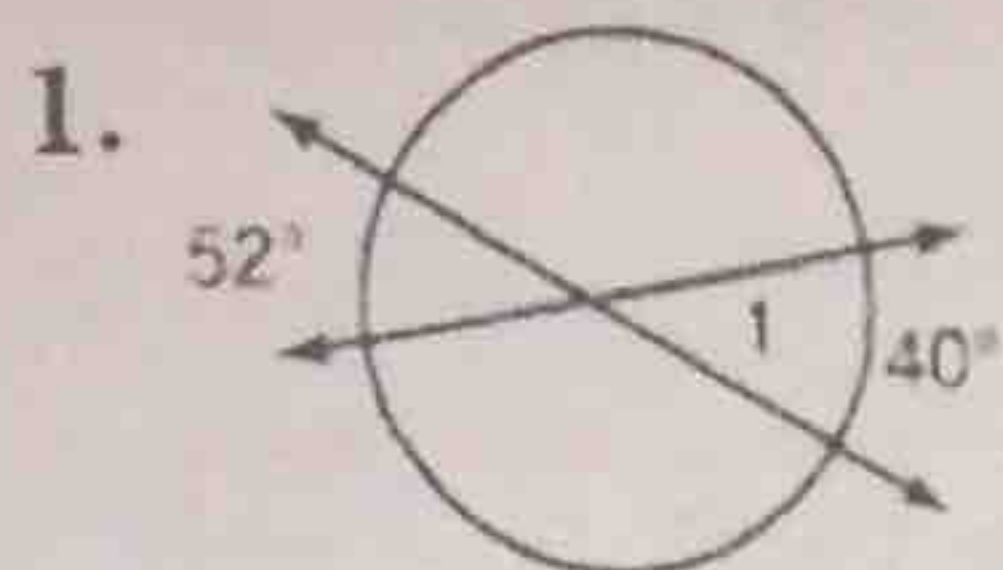
10.



$x = 16$

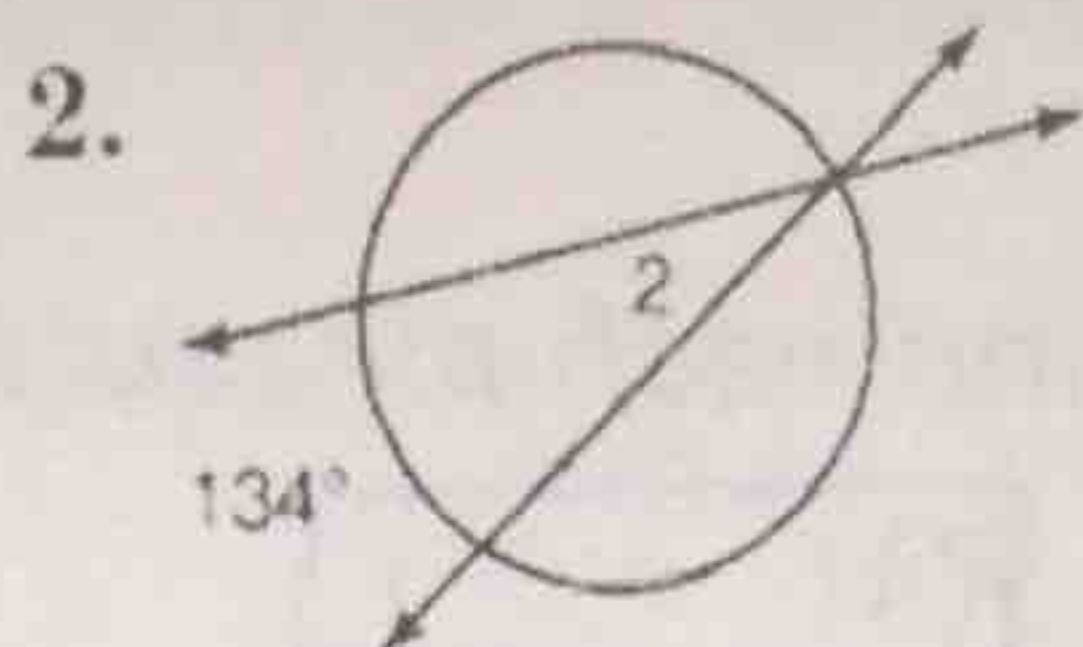


Find the measure of each numbered angle.



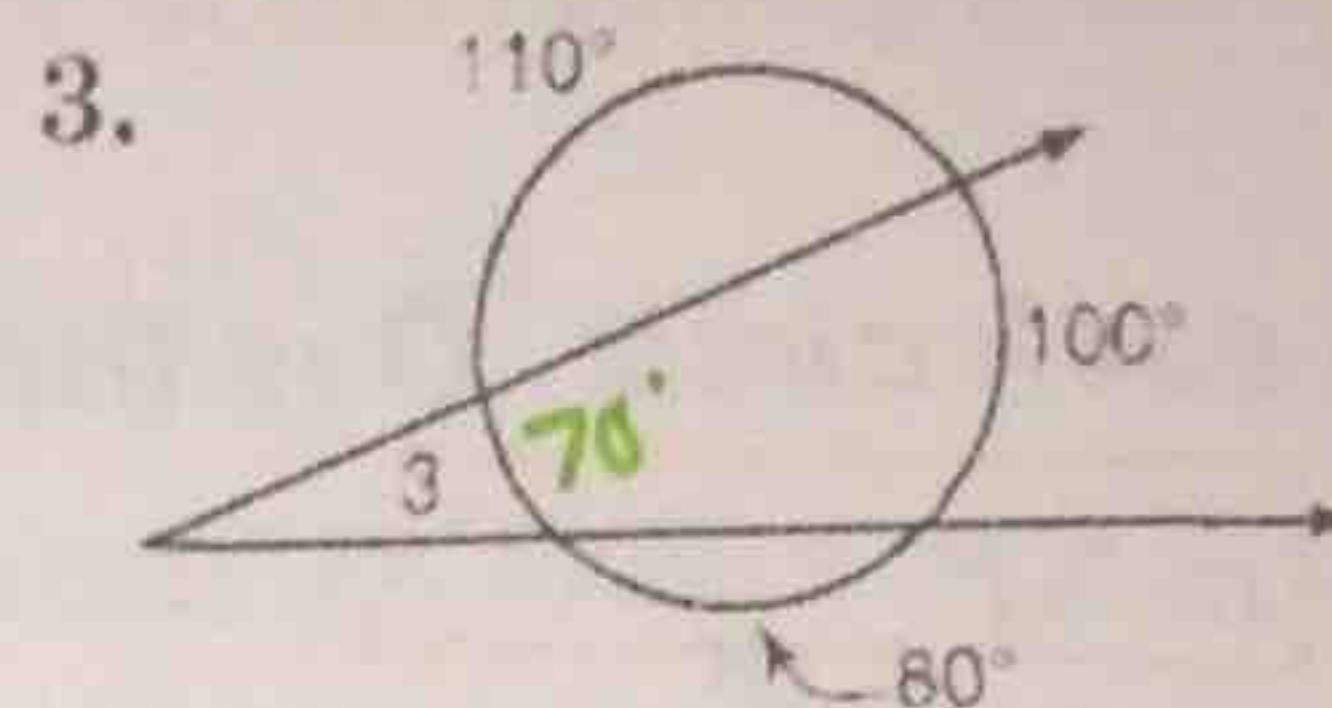
$$x = \frac{52 + 40}{2}$$

$$x = 46^\circ$$



$$x_2 = \frac{134}{2}$$

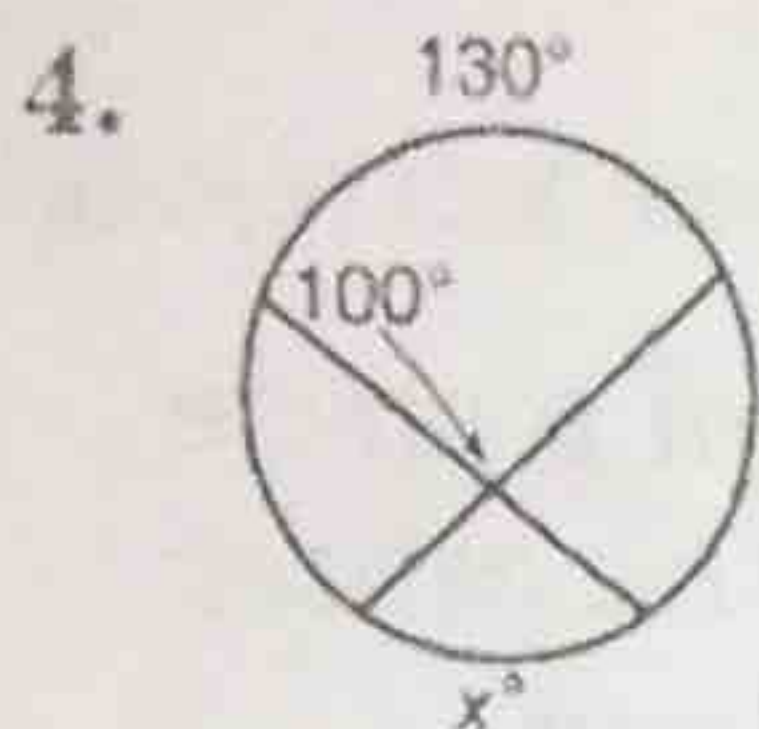
$$x_2 = 67^\circ$$



$$x_3 = \frac{100 - 70}{2}$$

$$x_3 = 15^\circ$$

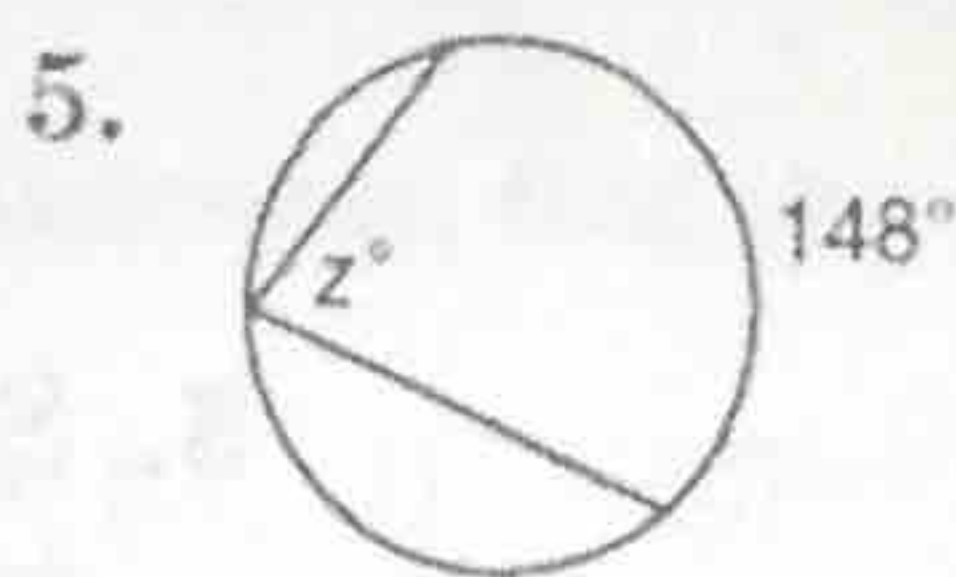
In each circle, find the value of x.



$$100 = \frac{x + 130}{2}$$

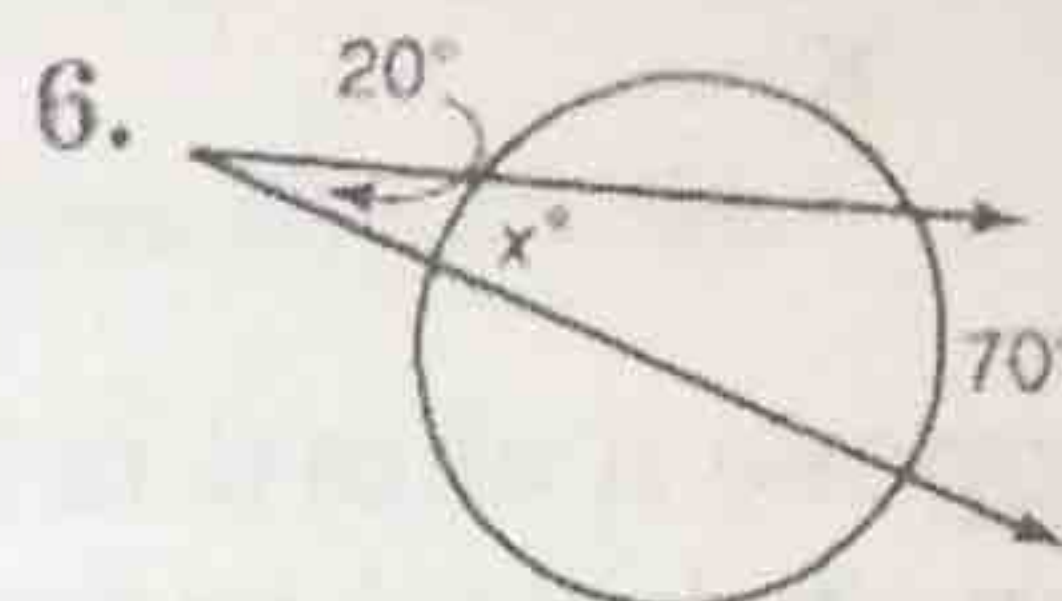
$$x = 70^\circ$$

$$200 = x + 130$$



$$z = \frac{148}{2}$$

$$z = 74^\circ$$



$$20 = \frac{70 - x}{2}$$

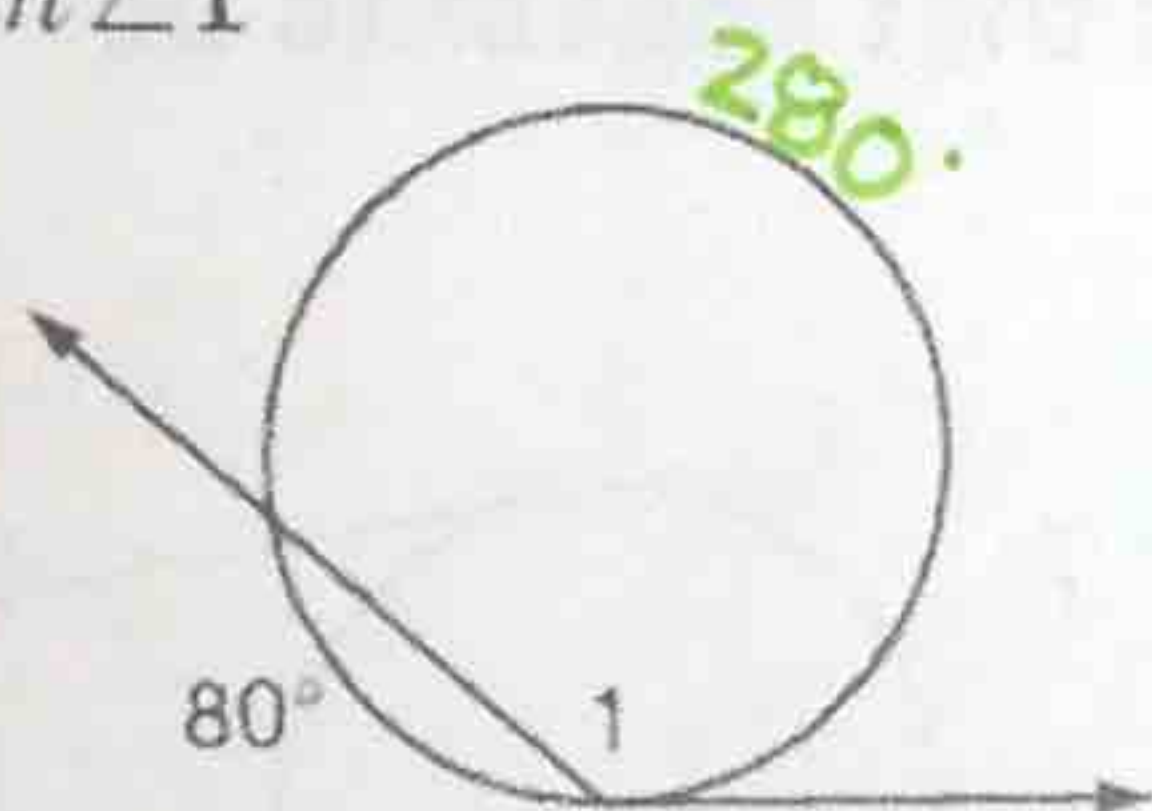
$$40 = 70 - x$$

$$-30 = -x$$

$$x = 30^\circ$$

Find the measure of each angle. Assume segments that appear to be tangent are tangent.

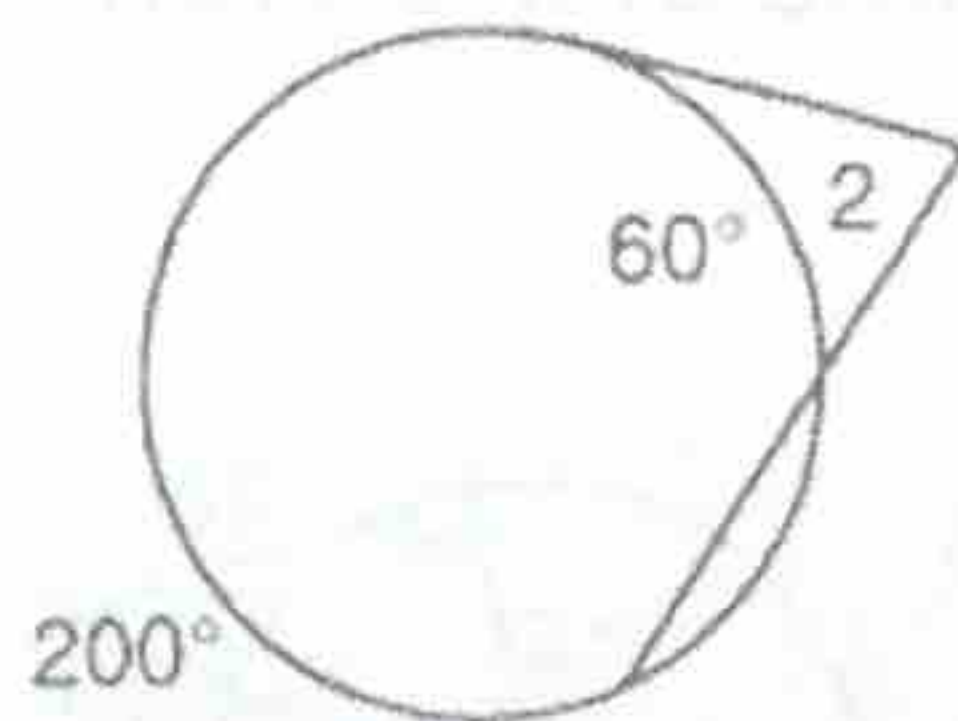
1.  $m\angle 1$



$$x_1 = \frac{280}{2}$$

$$x_1 = 140^\circ$$

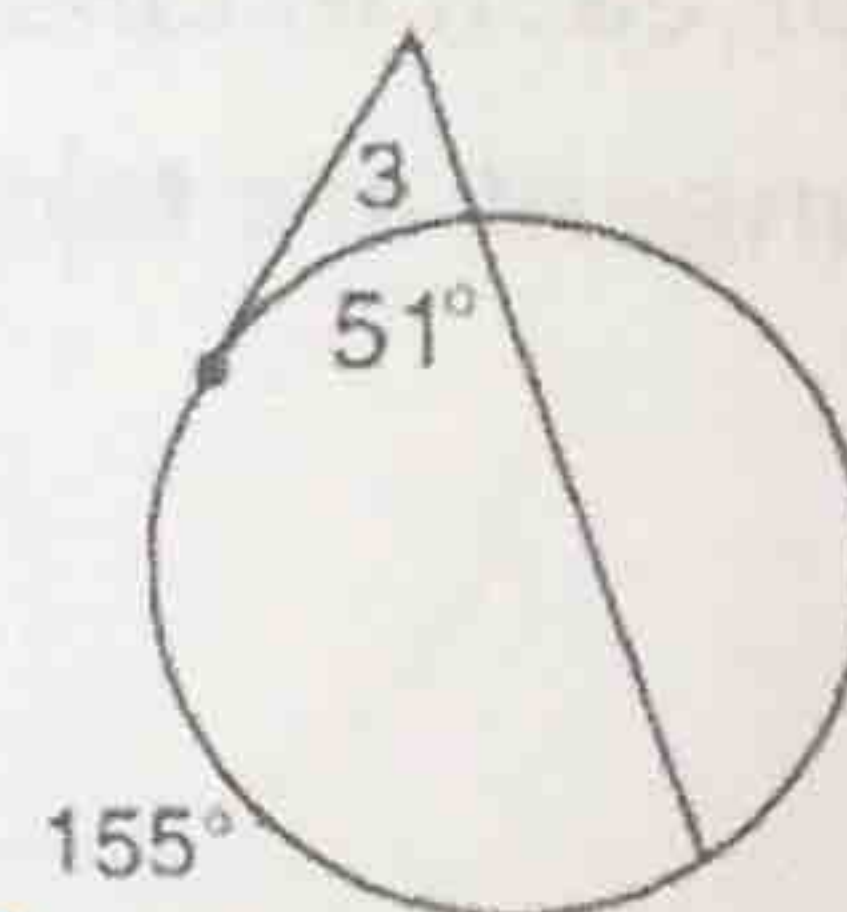
2.  $m\angle 2$



$$x_2 = \frac{200 - 60}{2}$$

$$x_2 = 70^\circ$$

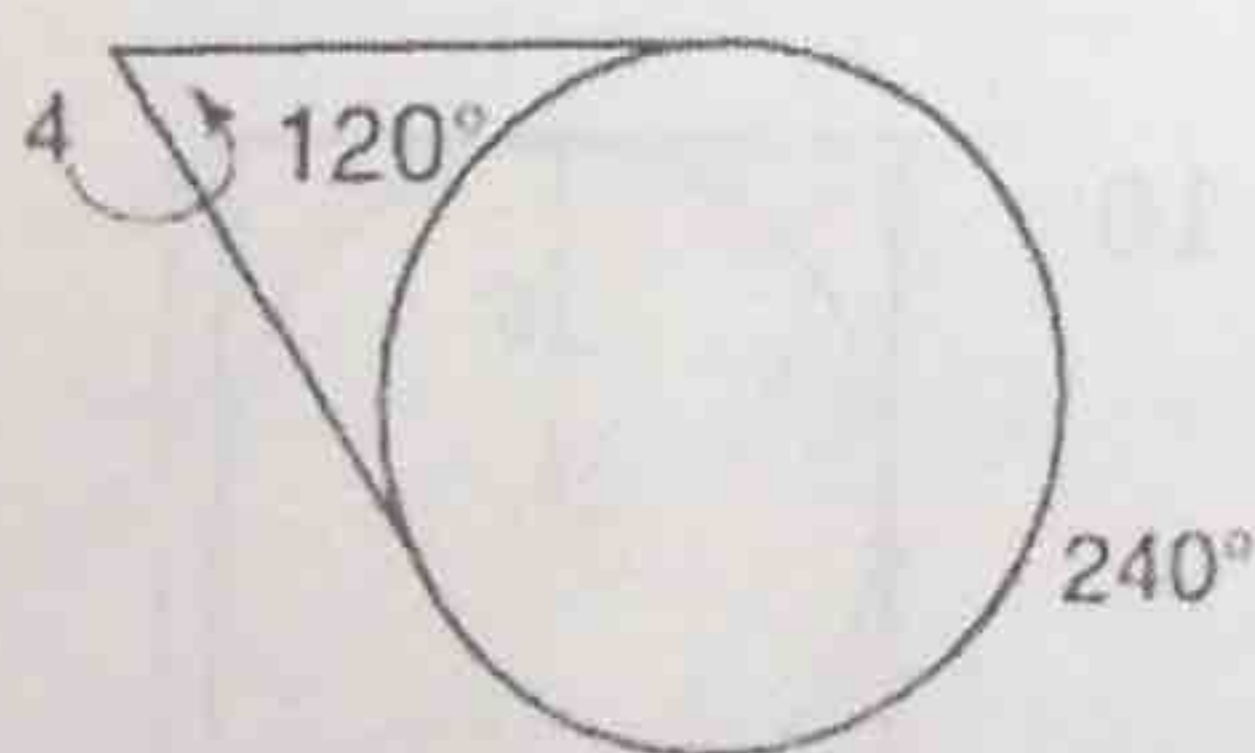
3.  $m\angle 3$



$$x_3 = \frac{155 - 51}{2}$$

$$x_3 = 52^\circ$$

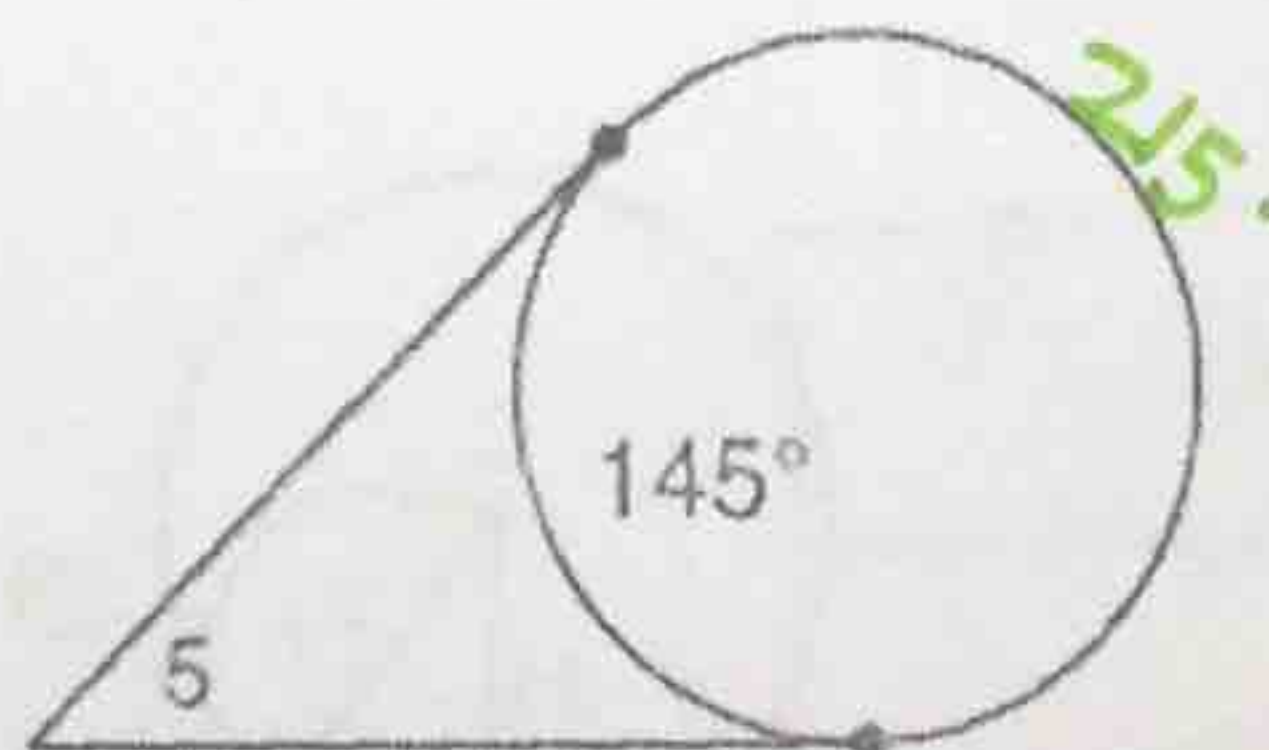
4.  $m\angle 4$



$$x_4 = \frac{240 - 120}{2}$$

$$x_4 = 60^\circ$$

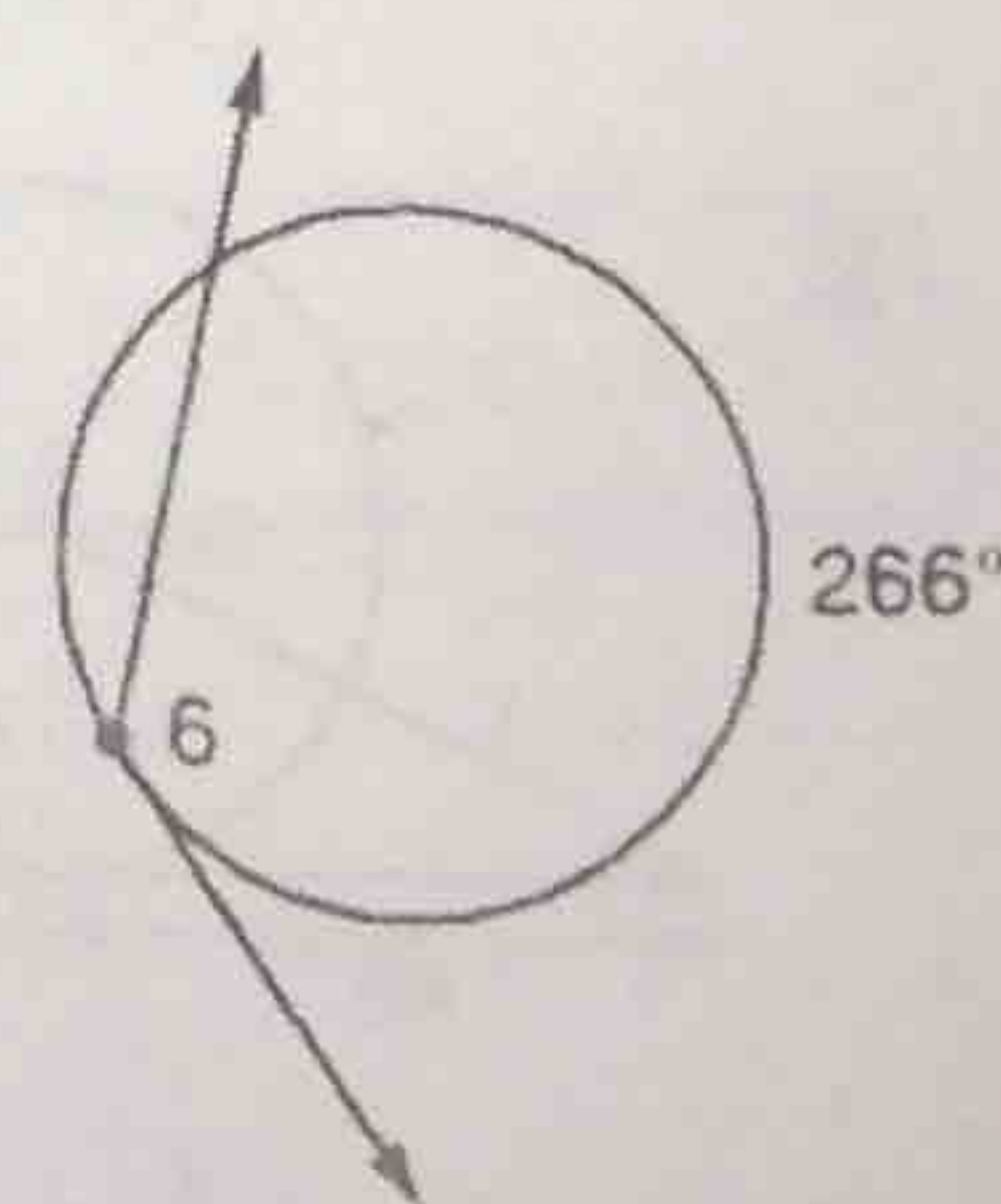
5.  $m\angle 5$



$$x_5 = \frac{215 - 145}{2}$$

$$x_5 = 35^\circ$$

6.  $m\angle 6$



$$x_6 = \frac{266}{2}$$

$$x_6 = 133^\circ$$



Find the coordinates of the center of the circle and the measure of the radius given:

1)  $(x+1)^2 + y^2 = 121$

$(-1, 0)$  Radius = 11

2)  $(x-4)^2 + (y-1)^2 = .49$

$(4, 1)$  radius = 0.7

Write an equation of a circle with the given center that passes thru the given point.

3) center: (2, 3) point: (0, 5)

$(x-2)^2 + (y-3)^2 = r^2$

$(0-2)^2 + (5-3)^2 = r^2$

$4 + 4 = r^2$

$8 = r^2$

$(x-2)^2 + (y-3)^2 = 8$

Given the two endpoints of a diameter, find the center and radius of a circle.

4) endpoint: (3, 6) and endpoint: (-1, -2)

$x_m = \frac{3-1}{2} = \frac{2}{2} = 1$  center = (1, 2)

$y_m = \frac{6-2}{2} = \frac{4}{2} = 2$

$(x-1)^2 + (y-2)^2 = r^2$

$(3-1)^2 + (6-2)^2 = r^2$

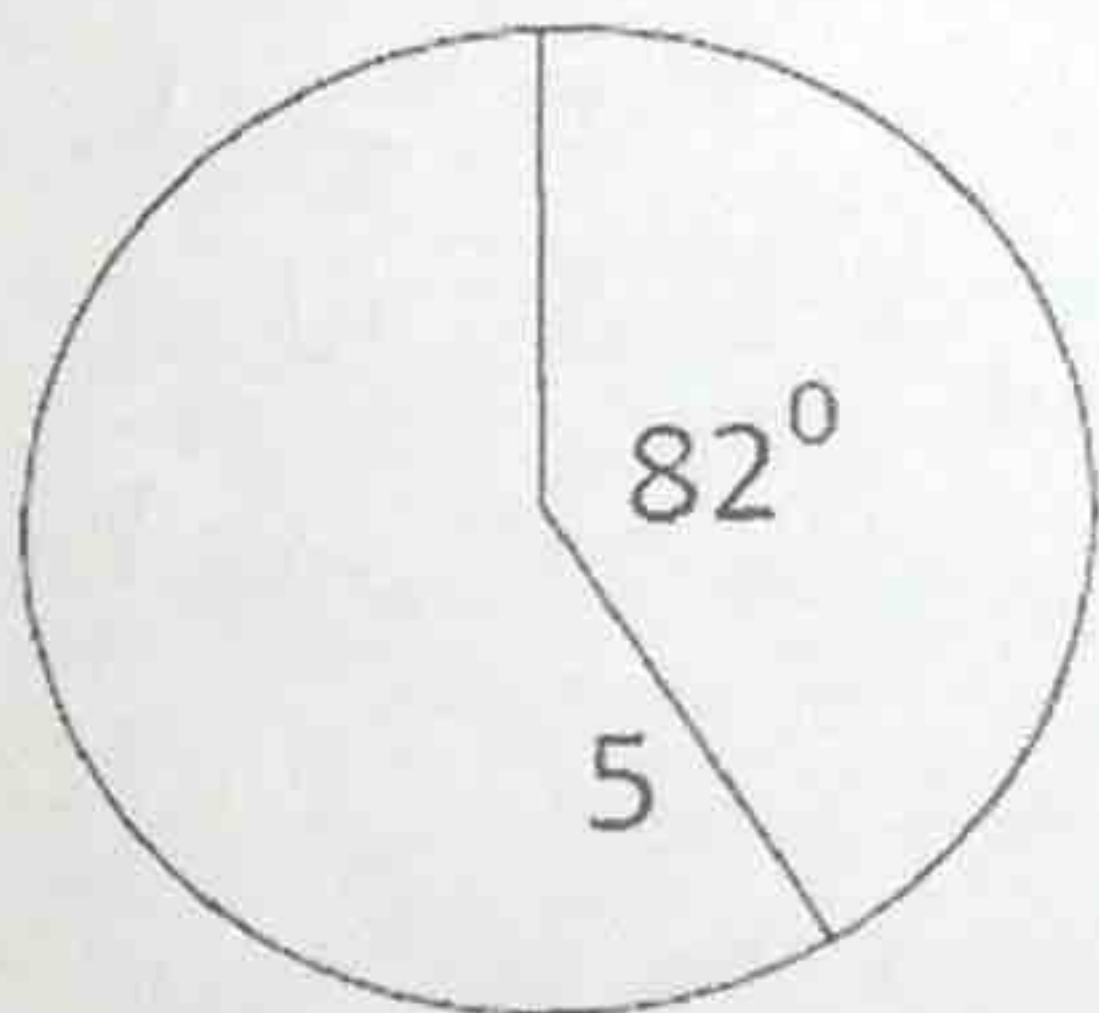
$4 + 16 = r^2$

$20 = r^2$

$(x-1)^2 + (y-2)^2 = 20$

Find the length of the minor arc.

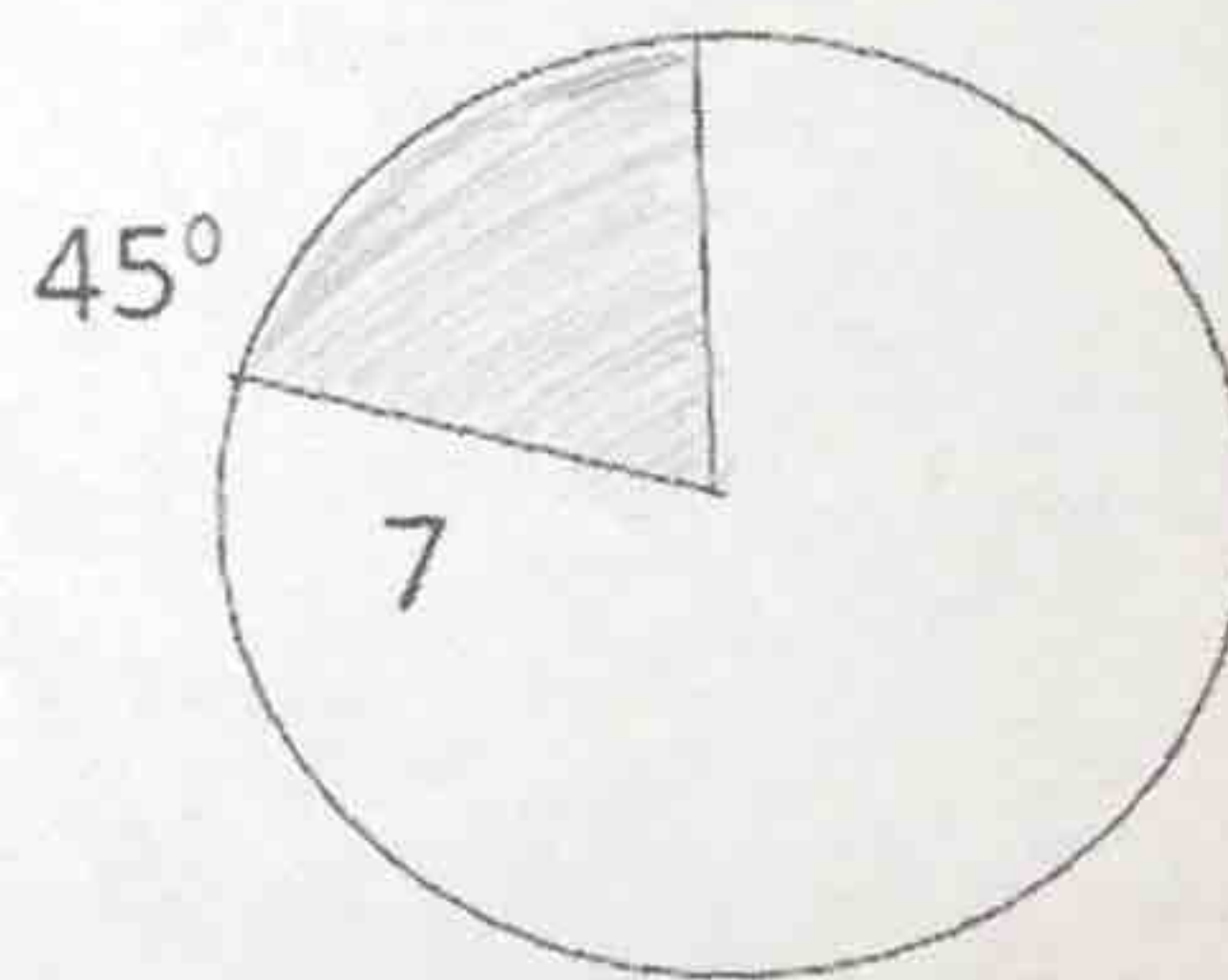
5)



Minor Arc =  $\frac{82(3.14)(5)}{180}$

Minor Arc = 7.15 units

6)



shaded =  $\frac{\pi(7)^2(45)}{360}$

shaded = 19.23 units<sup>2</sup>

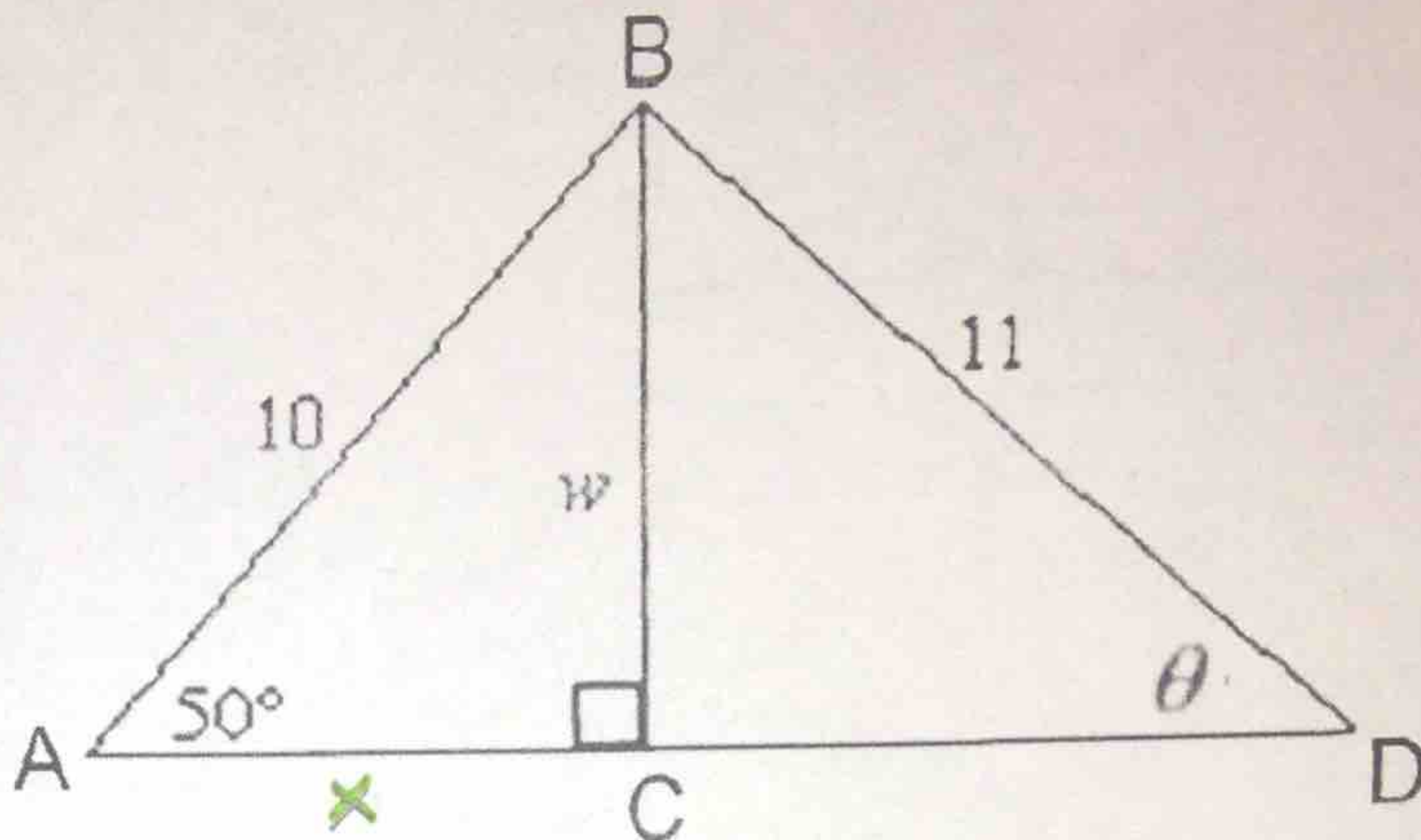


1)

AC: 6.43

BC: 7.66

$\theta$ : 44.1°



$\cos 50 = \frac{x}{10}$

$\sin 50 = \frac{w}{10}$

$\sin \theta = \frac{7.66}{11}$

$x = 10 \cos 50$

$w = 10 \sin 50$

$\theta = \sin^{-1}(7.66/11)$

Find the missing information.

2.  $x = 4.9$

3.  $\theta = 60^\circ$

6. Give the picture, find the following sides:

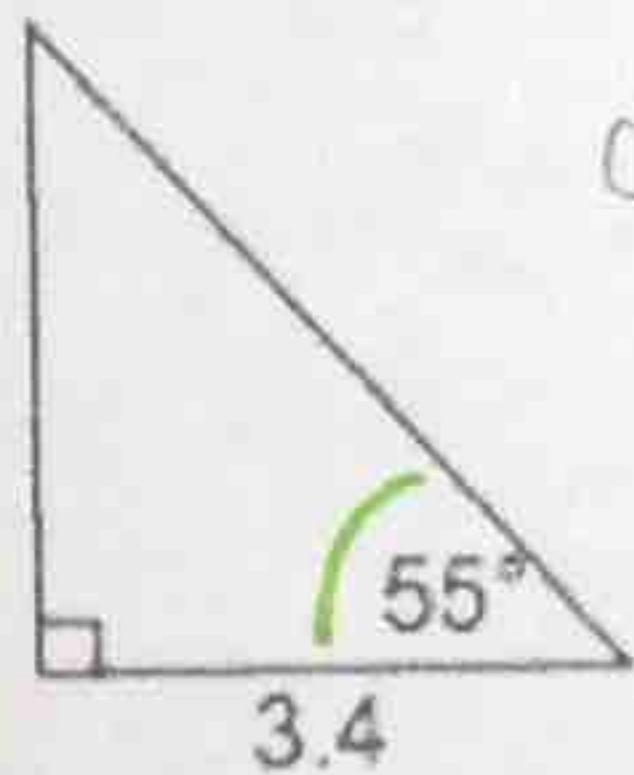
$\overline{AD} = \underline{7}$

$\overline{BC} = \underline{5.1}$

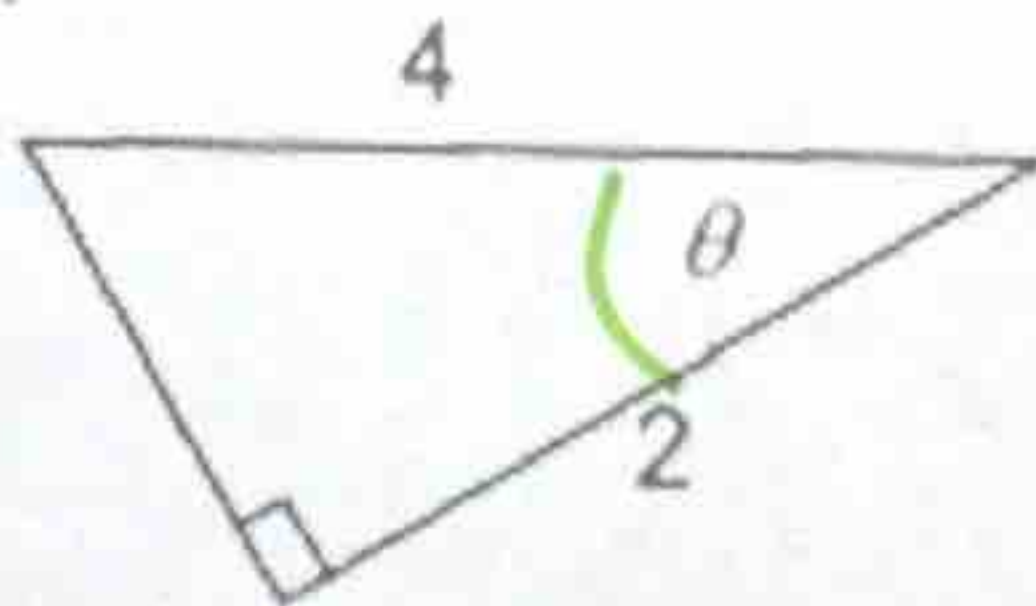
$\overline{CD} = \underline{14.9}$

$\overline{AB} = \underline{12.1}$

$\tan 55 = \frac{x}{3.4}$   
 $x = 3.4 \tan 55$

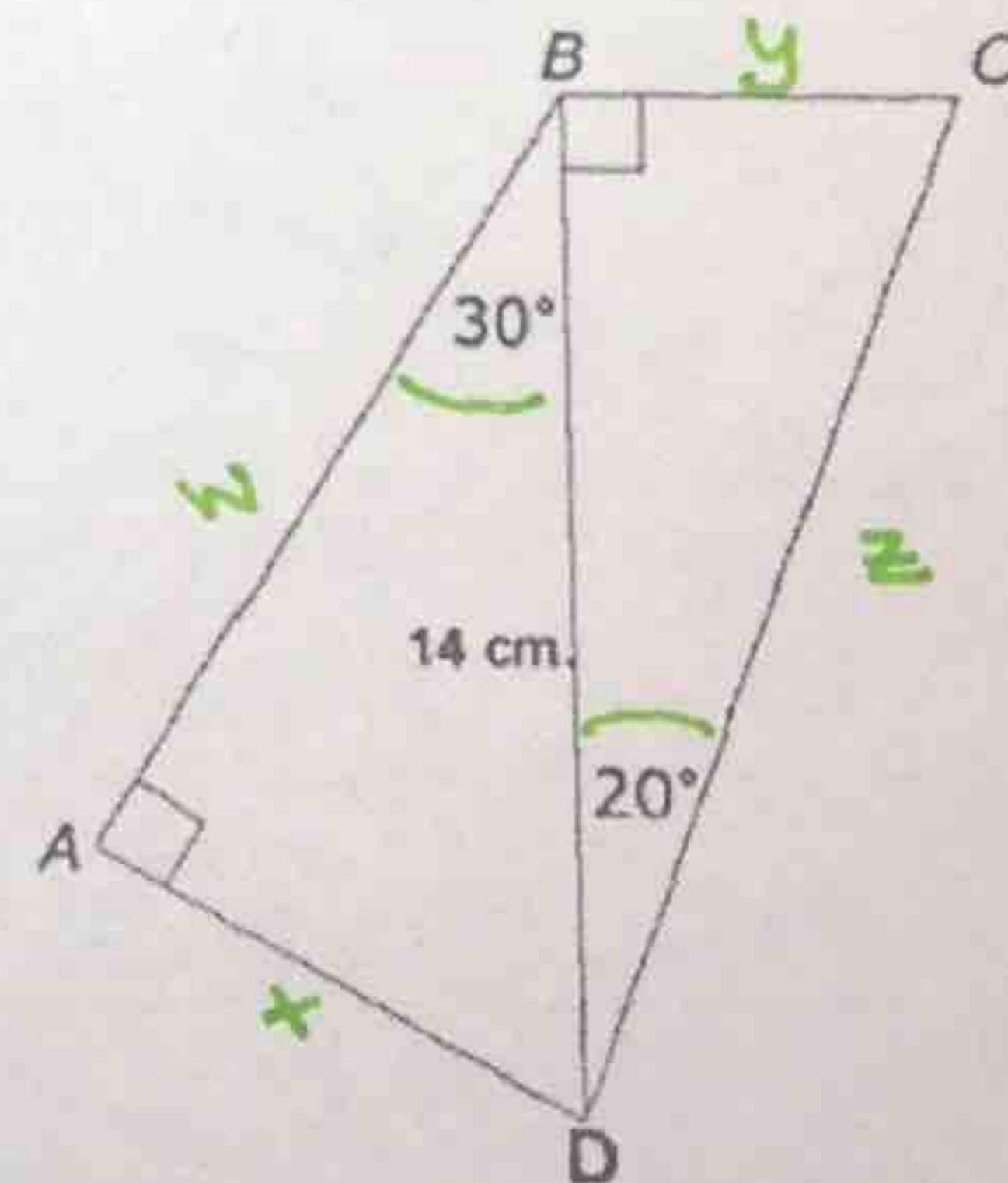
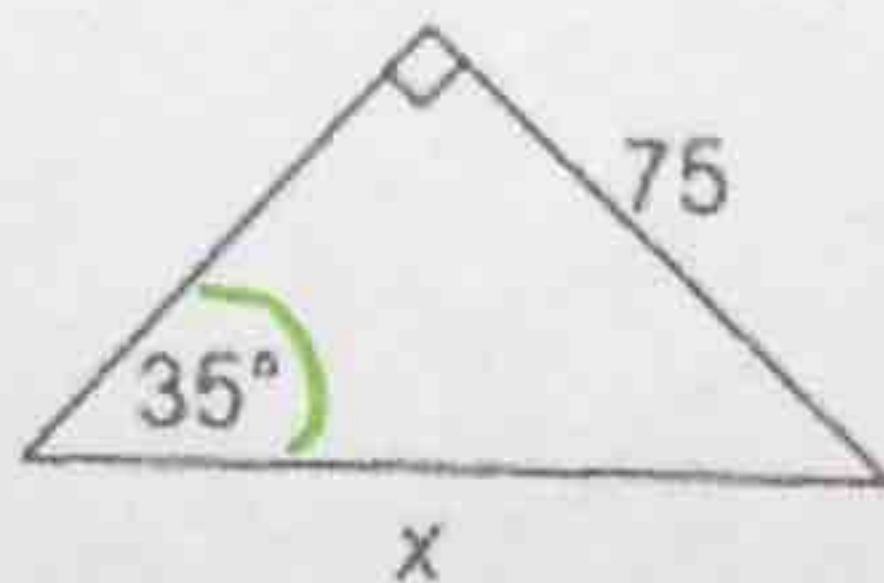
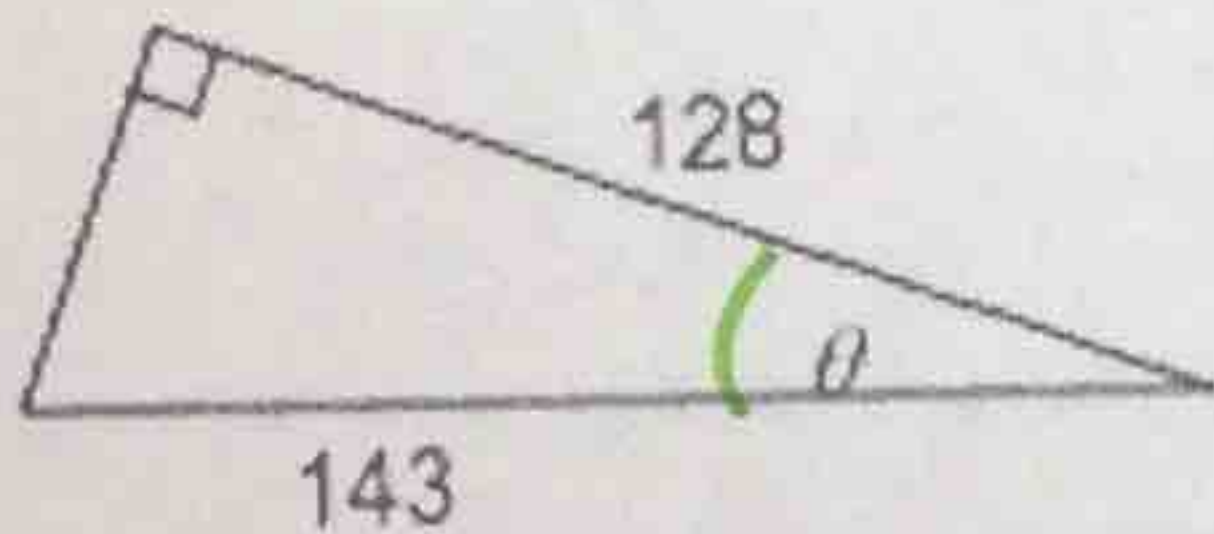


$\cos \theta = 2/4$



4.  $\theta = 26.5^\circ$

5.  $x = 130.8$



$\cos \theta = \frac{128}{143}$

$\sin 35 = \frac{75}{x}$

$\sin 30 = \frac{x}{14}$

$x = 14 \sin 30$

$\tan 20 = \frac{y}{14}$

$y = 14 \tan 20$

$\cos 20 = \frac{14}{z}$

$z = 14 / \cos 20$

$\cos 30 = \frac{w}{14}$

$w = 14 \cos 30$

$x = \frac{75}{\sin 35}$