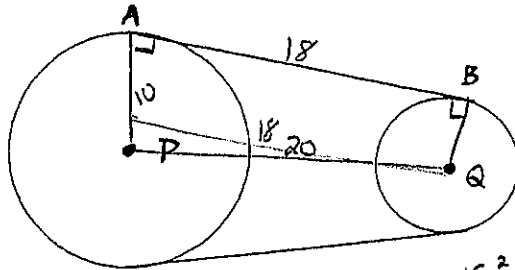


Name Key

1.



$AB = 18$

$AP = 10$

$PQ = 20$

$BQ = 10 - 2\sqrt{19}$

$18^2 + x^2 = 20^2$

$x = \sqrt{76} = 2\sqrt{19}$

2. Circle C contains point A. Tell whether point B is on the circle, inside the circle or outside the circle and justify your answer.

$C(-3,1)$

$A(0,5)$

$B(7,-3)$



$d_{CA} = \sqrt{(-3-0)^2 + (1-5)^2}$

$d_{CA} = \sqrt{25}$
 $d_{CA} = 5$

$d_{CB} = \sqrt{(-3-7)^2 + (1-(-3))^2}$

$d_{CB} = \sqrt{116}$
 $d_{CB} = 2\sqrt{29}$

Outside - $2\sqrt{29} > 5$

$SA = 10$

$EO = 8$

$ON = 7$

$DT = 4\sqrt{10}$

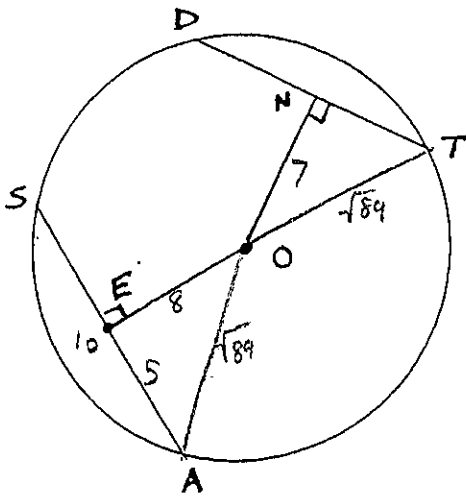
$5^2 + 8^2 = OA^2$ $7^2 + NT^2 = (\sqrt{89})^2$

$\sqrt{89} = OA$

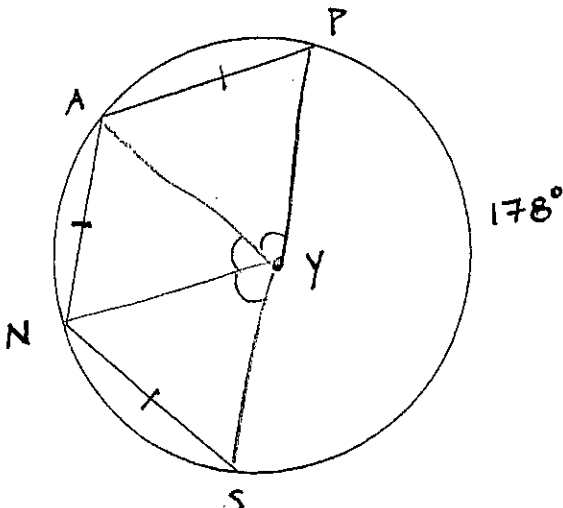
$NT = \sqrt{40}$

$NT = 2\sqrt{10}$

3.



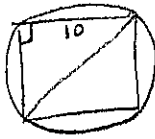
4.



$m \widehat{AN} = 60.6$

$m \widehat{PAS} = 182$

1. A square with side 10 cm is inscribed in a circle. Find the length of the radius of the circle.



$$10^2 + 10^2 = d^2$$

$$\sqrt{200} = d$$

$$10\sqrt{2} = d$$

$$r = 5\sqrt{2}$$

2. A circle with radius $8\sqrt{5}$ is circumscribed about an equilateral triangle. Find the length of a side of the triangle.



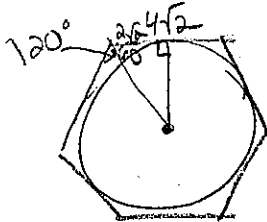
$$\frac{8\sqrt{5}}{2} = \text{short leg} = 4\sqrt{5}$$

$$\text{Side} = 2 \cdot 4\sqrt{5}$$

$$4\sqrt{5} \cdot \sqrt{3} = \text{long leg} = 4\sqrt{15}$$

$$8\sqrt{15}$$

3. A regular hexagon is circumscribed about a circle. If the regular hexagon has a side length of $4\sqrt{2}$, find the radius of the circle inscribed in the hexagon. Then, find the radius of the circle that could be circumscribed about the regular hexagon.



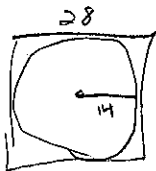
$$\frac{(6-2)180}{6} = 120$$

$$a) 2\sqrt{2} \cdot \sqrt{3} = 2\sqrt{6}$$

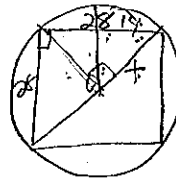
$$\frac{120}{2} = 60 \rightarrow 30-60-90 \Delta$$

$$b) 2\sqrt{2} \cdot 2 = 4\sqrt{2}$$

4. A circle with radius 14cm is inscribed in a square. Find the length of a side of the square and the length of the radius for a circle circumscribing the square.



$$\text{side} = 2 \cdot 14 = 28$$

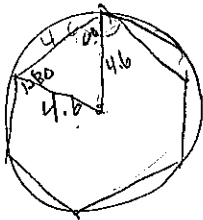


$$28^2 + 28^2 = d^2$$

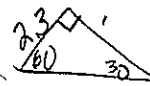
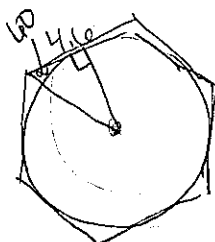
$$28\sqrt{2} = d$$

$$r = 14\sqrt{2}$$

5. The radius of a circumscribed circle is 4.6 inches. Find the length of a side of a regular hexagon that the circle circumscribes. Find the radius of a circle inscribed in the hexagon.



$$\text{Side} = 4.6$$



$$2.3\sqrt{3}$$