Potência de Ponto

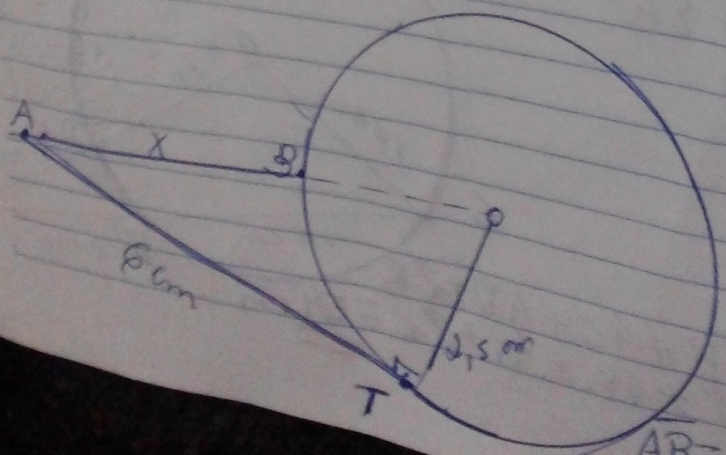
1) Pela teoria da potência de Ponto.
O quadrado do segmento tangente é igual ao produto dos segmentos secante pela sua parte externa ou seja.

$AB^2 = AC \cdot AD$ | $AC = CD = X$ | $64 = X \cdot 2 \cdot X$
$AB = \sqrt{64}$ | $AD = (AC + CD)$ | $64 = 2X^2$
$AB = 8$ cm | | $64/2 = X^2$
$X^2 = 32$
$X = \sqrt{32}$
$X = 4\sqrt{2}$

2)

$PA^2 = PC \cdot PB$
$(3PC)^2 = PC \cdot PB$
$9PC^2 = PC \cdot PB$
$9PC = PB$

3) $AT^2 = PA \cdot PB$



$h^2 = 6^2 + 2,5^2$
$h^2 = 36 + 6,25$
$h^2 = 42,25$
$h = \sqrt{42,25}$
$h = 6,5$

$AB = 6,5 - 2,5$
$AB = 4$ cm

$$6 = x(x+5)$$
$$36 = x^2 + 5x$$
$$x^2 + 5x - 36 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(5) \pm \sqrt{(5)^2 - 4.1(-36)}}{2.1}$$

$$x = \frac{(-5) \pm \sqrt{169}}{2}$$

$$x = \frac{(-5+13}{2} = \frac{(-5-13)}{2}$$

$$x = \frac{8}{2} \qquad x = \frac{-18}{2}$$

$$S = (4 \; -9)$$
$$x = 4$$

4)

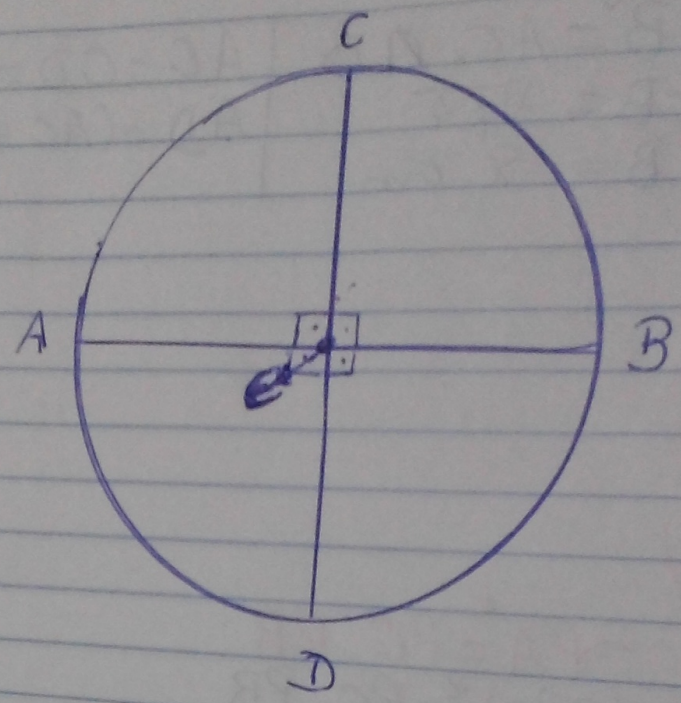
$AE \times EB = CE \times ED$

$CE = ED$

$3 = CE$

$CE = \sqrt{3}$

$CD = 2\sqrt{3}$



5)

$AB \cdot AC = AD \cdot AE$

$8 \cdot 18 = 4 \cdot (4+2R)$

$144 = 16 + 8R$

$8R = 144 - 16$

$8R = 128$

$R = \frac{128}{8}$

$R = 16$

Perimetro $= AB + AC + AD + 2\pi R$

$8 + 18 + 4 + 92 = 54$ cm