Potência de Ponto

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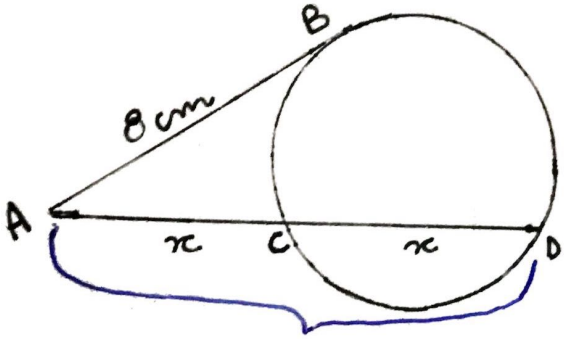
(1)



AD = (AC + CD)

Pela equação da potência de ponto:

$AB^2 = AC * AD$

$AB = 8$ cm

$AC = CD = x$ $\quad AD = AC + CD$

$8^2 = x * (x + x)$

$64 = x \cdot 2 \cdot x$

$64 = 2 \cdot x^2$

$\frac{64}{2} = x^2$

$x^2 = 32$

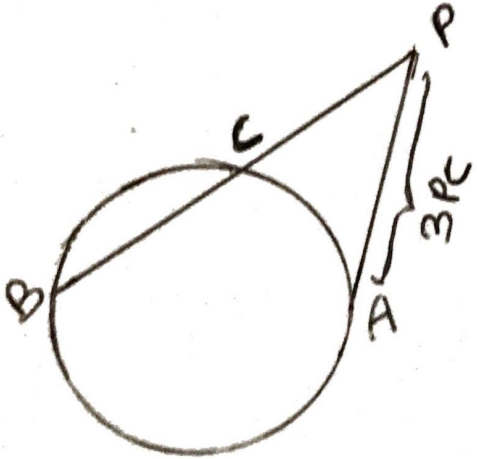
$x = \sqrt{32}$

$x = 4\sqrt{2}$ cm

32	2
16	2
8	2
4	2
2	2
1	$4\sqrt{2}$

> 2
> 2
> 2

(2)



$AP^2 = PC * PB$

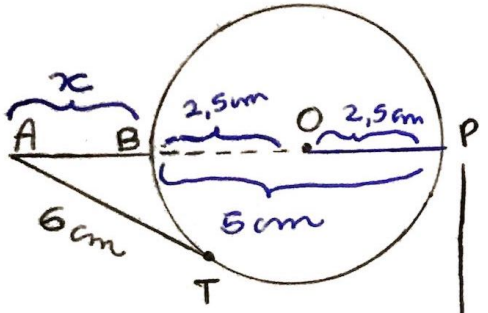
$AP = 3PC$

$(3PC)^2 = PC * PB$

$$\frac{9PC^2 = PC * PB}{PC}$$

$= 9PC = PB$

③



O raio foi duplicado (diâmetro), para achar o segmento da secante.

$AT^2 = AB * AP$

$AB = x$

$AP = x + 5$

$AT^2 = x * (x+5)$

$6^2 = x * (x+5)$

$36 = x * (x+5)$

$36 = x^2 + 5x$

$x^2 + 5x - 36 = 0$

$\Delta = b^2 - 4a.c$

$\Delta = 5^2 + 4.1(-36)$

$\Delta = 25 + 144$

$\Delta = 169$

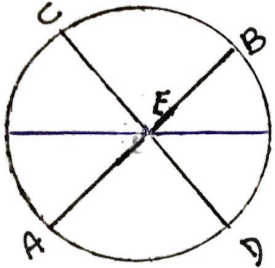
$x = \frac{-5 \pm \sqrt{169}}{2.1}$ ↘ $x' = \frac{-5+13}{2} = \frac{8}{2} = 4$

↳ $x'' = \frac{-5-13}{2} = \frac{-18}{2} = -9$

↳ medida geométrica é positiva, então:

$x = AB = 4\ cm$

④



↳ Como o diâmetro divide a corda ao meio,

$CE = DE$

$CE = DE$ ↘

$AE * EB = CE * DE$

$AE * EB = CE^2$ → $\overline{DE}$ por ser congruente foi substituído.

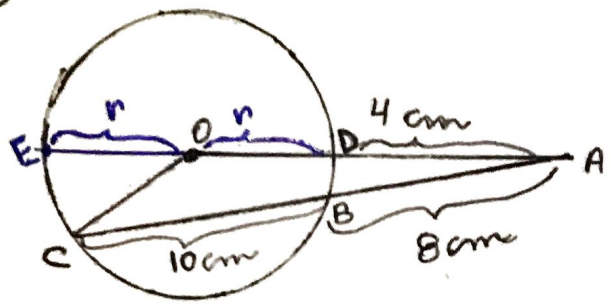
$3 = CE^2$

$CE = \sqrt{3}$

$CD = 2CE$

$CD = 2\sqrt{3}$

5



$\overline{EO}$ = segmento para somar à secante.

$DO = EO = r$ / $AE = 4 + 2r$ / $AC = 10 + 8 = 18$

$AE * AD = AC * AB$

$(4+2r) * 4 = 18 * 8$

$16 + 8r = 144$

$8r = 144 - 16$

$8r = 128$

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

$r = 16\ cm$

$OC = r = 16\ cm$

$AC = AB + BC = 10 + 8 = 18\ cm$

$OA = AD + r = 4 + 16 = 20\ cm$

Perímetro $= OC + AC + OA$

$= 16 + 18 + 20 =$ **54 cm**