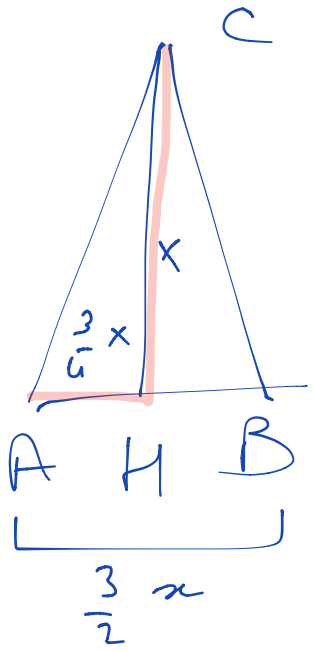
$$x^2 - 4\sqrt{2}\,x + 6 = 0$$

$$\Delta = (2\sqrt{2})^2 - 6 = 8 - 6 = 2$$

$$x_{1,2} = \frac{2\sqrt{2} \pm \sqrt{2}}{4}$$

$$x_1 = 2\sqrt{2} + \sqrt{2} = 3\sqrt{2}$$

$$x_2 = 2\sqrt{2} - \sqrt{2} = \sqrt{2}$$



$\overline{AB} : \overline{CH} = 3 : 2$

$P = 16\ cm$

$\overline{AB} = \frac{3}{2}\overline{CH}$

$\overline{CH} = x$

$\overline{AB} = \frac{3}{2}x$

$$\overline{CA} = \sqrt{x^2 + \frac{9}{16}x^2} = \sqrt{\frac{25}{16}x^2} = \frac{5}{4}x$$

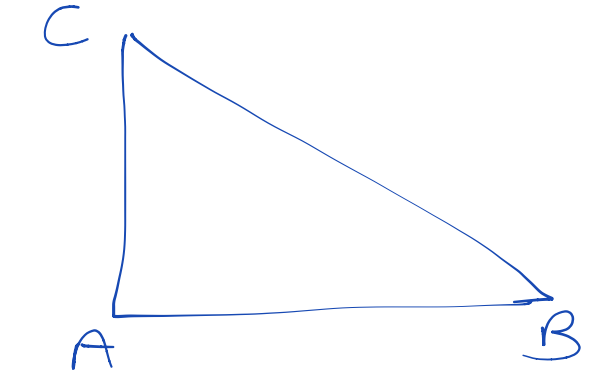
$$2 \cdot \frac{5}{4}x + \frac{3}{2}x = 16$$

$$4x = 16 \Rightarrow x = 4$$

$$\overline{AB} = \frac{3}{2}x = \frac{3}{2} \cdot 4 = 6$$

$$A = \frac{6 \cdot 4}{2} = 12\ cm^2$$

n. 462



$\mathcal{A} = 80\ cm^2$

$\overline{CB} = ?$

$\overline{AB} - 4 = 2\overline{AC}$

$\overline{AC} = x = 8$

$\overline{AB} = 2x + 4 =$

$= 20$

$\frac{1}{2} x(2x+4) = 80$

$x(x+2) = 80$

$x^2 + 2x - 80 = 0$

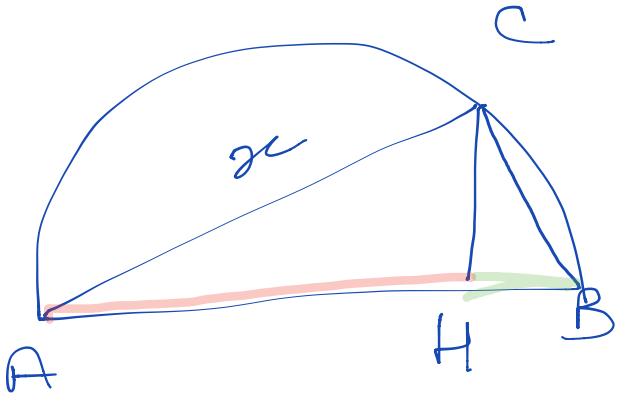
$\frac{\Delta}{4} = 1 + 80 = 81$

$x_{1,2} = -1 \pm 9$ → $x_1 = 8$

→ $x_2 = -10$ n.a.

$\overline{CB} = \sqrt{100 + 64} = \sqrt{164} = 4\sqrt{29}\ cm$

n.475



$\overline{AB} = 2r$

$\overline{AC} = x$

$\overline{AH}^2 + 2\overline{CH}^2 = \frac{7}{4}r^2$

$\overline{CB} = \sqrt{4r^2 - x^2}$

$\overline{AC}^2 = \overline{AB} \cdot \overline{AH} \Rightarrow \overline{AH} = \frac{x^2}{2r}$

$\overline{CH} = \sqrt{x^2 - \frac{x^4}{4r^2}} = \sqrt{\frac{4r^2x^2 - x^4}{4r^2}}$

$\frac{x^4}{4r^2} + 2 \cdot \frac{4r^2x^2 - x^4}{4r^2} = \frac{7}{4}r^2$

$x^4 + 8r^2x^2 - 2x^4 = 7r^4$

$-x^4 + 8r^2x^2 - 7r^4 = 0$

$x^4 - 8r^2x^2 + 7r^4 = 0$

$(x^2 - r^2)(x^2 - 7r^2) = 0$

$x^2 - r^2 = 0 \Rightarrow x = \pm r$

$x^2 - 7r^2 = 0 \Rightarrow x = \pm\sqrt{7}\, r$

non acc.

perché $\overline{AC} > \overline{AB}$

$x = r$ acc.

$$\sqrt{3}x^2 - 3x + \sqrt{3} = 0$$

$$\Delta = 9 - 4(\sqrt{3})(\sqrt{3}) = 9 - 12 < 0$$

$$S = \emptyset$$

$$2x^2 - 2\sqrt{2}x + 1 = 0$$

$$\frac{\Delta}{4} = 2 - 2 = 0$$

$$(\sqrt{2}x - 1)^2 = 0$$

$$\sqrt{2}x - 1 = 0 \Rightarrow x = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$