$$\sqrt[3]{x^3 - 27} \leq 3 - x$$

$$a = b \qquad a^3 = b^3$$

$$a^2 = b^2 \rightarrow \begin{cases} a = b \\ a = -b \end{cases}$$

$$\sqrt[3]{x^3-27} \leq 3-x$$

$$x^3-27 \leq 27-27x+9x^2-x^3$$

$$2x^3-9x^2+27x-54 \leq 0$$

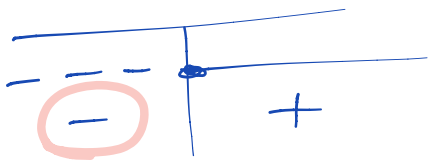
	2	-9	27	-54
3		6	-9	54
	2	-3	18	//

$$(x-3)(2x^2-3x+18) \leq 0$$

1° f: $x-3 \geq 0 \quad x \geq 3$

2° f: $\Delta = 9-18\cdot 8 < 0 \quad \forall x \in \mathbb{R}$

$S = (-\infty, 3]$



$$\sqrt{x^2-6x+9}+\sqrt{x^2-9}=0$$

$$(x-3)^2=0 \qquad x=3$$

$$x=\pm 3$$

$$S=\{3\}$$

$$\sqrt{2(7x+2)}-\sqrt{2(7x-6)}=2$$

$$\sqrt{2(7x+2)}=2+\sqrt{2(7x-6)}$$

$$14x+4=4+14x-12+4\sqrt{2(7x-6)}$$

$$4\sqrt{2(7x-6)}=12$$

$$\sqrt{2(7x-6)}=3$$

$$14x-12=9 \qquad 14x=21$$

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

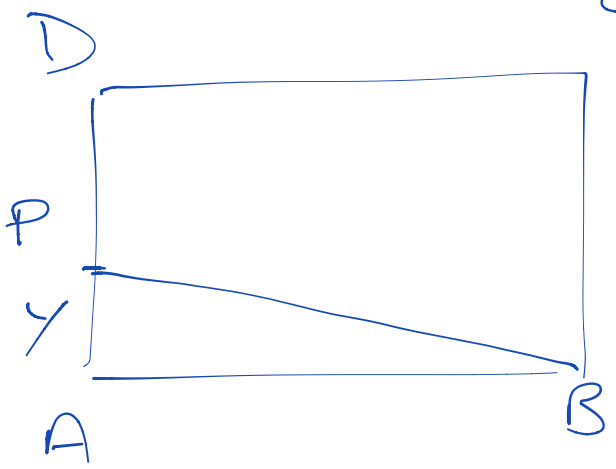
$$\sqrt{A(x)} + \sqrt{B(x)} = 3$$

$$\begin{cases} A(x) \geq 0 \\ B(x) \geq 0 \\ 4x - 5 \geq 0 \end{cases}$$

$$\sqrt{A(x)} = 3 - \sqrt{B(x)}$$

$$A(x) = \sim\sim\sim - 6\sqrt{B(x)}$$

$$6\sqrt{B(x)} = 4x - 5$$



$P = 40$ cm

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

$\overline{PB} + \overline{PD} = 16$

$A(\triangle ABP) = ?$

$\overline{AB} = x$

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

$\frac{1}{3}x + 2x = 40$

$4x + 6x = 120$

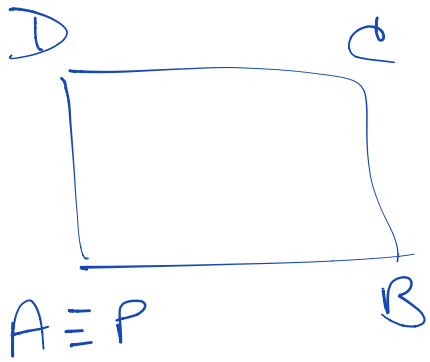
$10x = 120 \quad ; \quad x = 12\ cm$

$\overline{AB} = 12\ cm$

$\overline{AD} = 8\ cm$

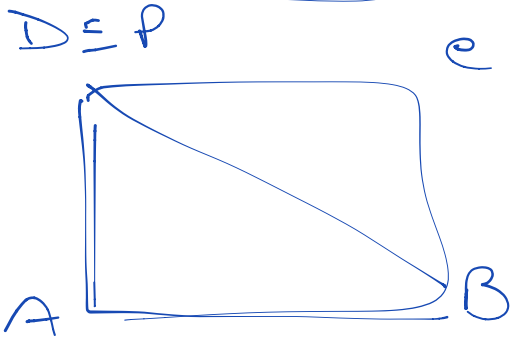
$\overline{PA} = y \qquad 0 \leq y \leq 8$

1° caso limite) $P \equiv A$



$A(\hat{ABP}) = 0$

2° caso limite) $P \equiv D$



$A(ABP) = \frac{1}{2} \cdot 12 \cdot 8 =$

$= 48\ cm^2$

$\overline{PA} = y \qquad \overline{PD} = 8 - y$

$\overline{PB} = \sqrt{AB^2 + PA^2} = \sqrt{144 + y^2}$

$\sqrt{144 + y^2} + 8 - y = 16$

$\sqrt{144 + y^2} = y - 8$

$144 + y^2 = y^2 - 16y + 64$

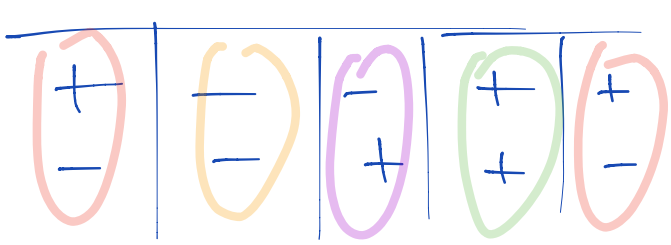
$16y = 80 \qquad y = \frac{80}{16} = \frac{10}{2} = 5\,cm$

$A(\overset{\Delta}{ABP}) = \frac{1}{2} \cdot \overline{AB} \cdot \overline{PA} = \frac{1}{2} \cdot 12 \cdot 5 = 30\,(m^2$

$$15-|x^2-1|+|5x-x^2|=x$$

I) $x^2-1\geq 0$; $x\leq -1 \vee x\geq 1$

II) $x^2-5x\leq 0$; $0\leq x\leq 5$



1) $\begin{cases} x<-1 \vee x\geq 5 \\ 15-x^2+1-5x+x^2=x \end{cases}$ $\begin{cases} x<-1 \vee x\geq 5 \\ 6x=16 \end{cases}$

$\begin{cases} x<-1 \vee x\geq 5 \\ x=8/3 \end{cases}$ n.a. $S_1=\emptyset$

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