

1 Prove que $|a+b| \leq |a|+|b|$, Para todos $a, b \in \mathbb{R}$

Se $|a| \leq 0$, $|a|+|b| \geq 0$; Se $|a| > 0$, $|a|+|b| > 0$; Se $|b| \geq 0$, $|a|+|b| \geq 0$

Se $|a| \leq 0$:

Se $|b| \leq 0$:

Se $b \leq 0$:

Se $a \leq 0$, $|a+b| \geq 0$;
Se $a > 0$, $|a+b| \geq 0$;

Se $b > 0$:

Se $a \leq 0$, $|a+b| \geq 0$;

Se $a > 0$, $|a+b| > 0$;

2 Determine os valores de x que resolvem a equação $|x-1|+|x-3| = 4$ sabendo que $x > 1$

todo x

Para: $|x-1|+|x-3|=4$ Se, e somente se, $x > 1$.

$0 < |x-1|$ Se $x > 1$ $\left\{ \begin{array}{l} 0+2=2 \\ |x-1| < |x-3| \end{array} \right.$

$(|x-1| > 0) + (|x-3| > 2) = (|x-3| \geq 4)$

$0 \leq |x-3|$ Se $x \geq 3$ $\left\{ \begin{array}{l} 0+1=1 \\ |x-3|+|x-1| \geq 2 \end{array} \right.$

$1 \leq |x-1|$ Se $x \geq 2$ $\left\{ \begin{array}{l} 1+1=2 \\ |x-1|+|x-3| \geq 2 \end{array} \right.$

$2 \leq |x-1|$ Se $x \geq 3$ $\left\{ \begin{array}{l} 2+1=3 \\ |x-1|+|x-3| \geq 2 \end{array} \right.$

$1 \leq |x-3|$ Se $x \geq 2$ $\left\{ \begin{array}{l} 1+1=2 \\ |x-3|+|x-1| \geq 2 \end{array} \right.$

$2 \leq |x-1|$ Se $x \geq 4$ $\left\{ \begin{array}{l} 2+1=3 \\ |x-1|+|x-3| \geq 2 \end{array} \right.$

$1 \leq |x-3|$ Se $x \geq 4$ $\left\{ \begin{array}{l} 1+1=2 \\ |x-3|+|x-1| \geq 2 \end{array} \right.$

Modulo da soma de duas variáveis é menor ou igual ao maior dos modulos individuais.
A soma de dois modulos de variáveis independentes possui o mesmo de cada um de ser positivo, pois modulos são sempre positivos.

Se $|a| \geq 0$ e $|b| \geq 0$, $|a+b| \geq 0$, Sejam A e B quaisquer nels

Porém, a soma de duas variáveis depende de seis casos: (casos antes de serem)
Para $A \geq 0$, Se $B \geq 0$: $|A+B| = |A|+|B|$; $|A+B| \geq 0$, $|A|+|B| \geq 0$
Para $A < 0$, Se $B \geq 0$: $|A+B| \leq |B|+|A|$; $|A+B| \geq 0$, $|A|+|B| > 0$
Para $A < 0$, Se $B < 0$: $|A+B| \leq |B|+|A|$; $|A+B| > 0$, $|B|+|A| > 0$
Para $A < 0$, Se $B \geq 0$: $|A+B| \leq |B|+|A|$; $|A+B| > 0$, $|B|+|A| > 0$
Para $A > 0$, Se $B < 0$: $|A+B| \leq |B|+|A|$; $|A+B| > 0$, $|B|+|A| > 0$

$$\vec{r} = 0.1 - 0.2 \left(\frac{1}{2} \right) \hat{u}_2$$



radius and, therefore, \vec{r}

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$$f(x) = x^2 - 2x + 3$$

$$f(4) = 4^2 - 2(4) + 3 = 9$$

$$f(0) = 0^2 - 2(0) + 3 = 3$$

$$f(-3) = (-3)^2 - 2(-3) + 3 = 18$$

$$f(4) = 4^2 - 2(4) + 3 = 9$$

$$\sin(x) = 0.25$$

$$\sin(x) = 0.25$$

$$\sin(\theta) = \sin(\pi - \theta)$$

$$-\pi + 0.25 = -2.89$$

$$\sin(\theta) = \sin(\theta + 2\pi)$$

$$x = -0.25 + \pi$$

$$x = -2.89 + \pi$$

$$\frac{7\pi}{2} \text{ to } \frac{13\pi}{2}$$

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$$\sin(x) = 0.95$$

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$$f(x) = x^2 - 2x + 3$$

$$f(1) = 1^2 - 2(1) + 3 = 2$$

$$f(0) = 0^2 - 2(0) + 3 = 3$$

$$f(-1) = (-1)^2 - 2(-1) + 3 = 6$$

$$f(2) = 2^2 - 2(2) + 3 = 3$$

$$\sin(x) = 0,25$$

$$\sin^{-1}(0,25) = 0,25$$

$$\sin(\theta) = \sin(6\pi - \theta)$$

$$-11 + 0,25 = -10,75$$

$$\sin(\theta) = \sin(\theta + 2\pi)$$

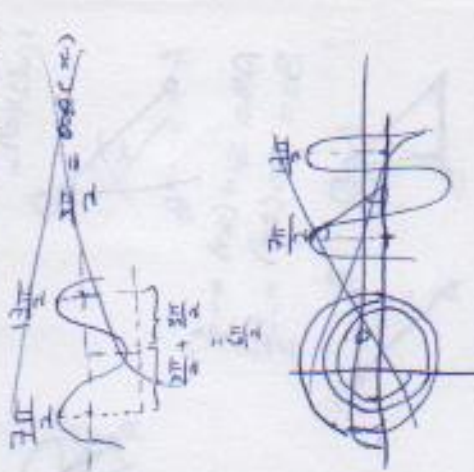
$$x = -0,25 + 2\pi$$

$$x = -2,89 + 2\pi$$

$$\frac{7\pi}{2} \approx \frac{13\pi}{2}$$

$$\sin(x) = 0,95$$

$$\sin^{-1}(0,95) = 0,95$$



$$\sin^{-1}(0,95) \approx \frac{\pi}{10}$$

$$\sin(\theta) = \sin(\pi - \theta) = 1,88835676$$

$$x = 1,25 + 2\pi$$

$$x = 1,89 + 2\pi$$

$$x = 2,536421201$$

Handwritten notes and diagrams on the bottom half of the page. The notes are mostly illegible due to blurring and handwriting. There are several diagrams, including a circle with a radius, a triangle, and a coordinate system with a sine wave. The diagrams appear to be related to trigonometry or geometry.