ການແກ້ສົມຜົນໃນຈຳນວນສົນ

6 ພຶດສະພາ 2565 8:53

ຮູບຮ່າງ: $ax^2+bx+c=0$

ສູດ: $\Delta = b^2-4ac$

$$x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2a}$$

ຕາກສົມຜົນໃນ $\mathbb{R}$

$\Delta < 0$ ບໍ່ມີໃຈຜົນ

ຕົວຢ່າງ 12. ຈົ່ງແກ້ສົມຜົນລຸ່ມນີ້

1) $(2+3i)x = x-1$

2) $\frac{2+i}{1-1}x = \frac{-1+3i}{2+i}$

3) $x^2-4x+13=0$

4) $2x^2-ix+1=0$

5) $x^2+(-2+i)x-2i=0$

6) $4x^2-2x-i\sqrt{3}=0$

1. $(2+3i)x = x-1$

$(2+3i)x - x = -1$

$x[(2+3i)-1] = -1$

$x(2+3i-1) = -1$

$x(1+3i) = -1$

$$x = \frac{-1}{1+3i} = \frac{-1(1-3i)}{(1+3i)(1-3i)}$$

$$= \frac{-1+3i}{1^2-(3i)^2} = \frac{-1+3i}{1-9(-1)} = \frac{-1+3i}{7}$$

$$x = -\frac{1}{7}+\frac{3}{7}i$$

3. $x^2-4x+13=0$

$\Delta = b^2-4ac$

$= (-4)^2-4\cdot 1\cdot 13$

$i^2=-1$

$= (-4) - 4 \cdot 1 \cdot 13$ $\quad (i = -1)$

$= 16 - 52$

$\Delta = -36 \Rightarrow \sqrt{\Delta} = \sqrt{-36} = \sqrt{36 i^2} = 6i$

$\sqrt{\Delta} = 6i$

$x_1 = \frac{-b + \sqrt{\Delta}}{2a} = \frac{-(-4) + 6i}{2 \cdot 1} = \frac{4 + 6i}{2} = \frac{2(2 + 3i)}{2} = 2 + 3i$ //

$x_2 = \frac{-b - \sqrt{\Delta}}{2a} = \frac{-(-4) - 6i}{2} = \frac{4 - 6i}{2} = \frac{2(2 - 3i)}{2} = 2 - 3i$ //