1.5 day 2 hw

Friday, September 6, 2013
8:02 AM

91. $z \cdot \bar{z} = (a+bi)(a-bi) = a^2 - bi^2 = a^2 + b^2$ is a REAL #

92. $z + \bar{z} = (a+bi) + (a-bi) = 2a$ is REAL #

pg. 94

17. $4y^2 + 9 = 0$

$4y^2 = -9$

$y^2 = \frac{-9}{4}$

$y = \pm \frac{3i}{2}$

21. $(2k-5)^2 = 16$

$2k - 5 = \pm 4$

$2k = 5 \pm 4$

$k = \frac{5 \pm 4}{2}$

$\frac{5+4}{2} = \frac{9}{2}$

$\frac{5-4}{2} = \frac{1}{2}$

25. $x^2 - 2x - 1 = 0$

discriminant $= b^2 - 4ac = (-2)^2 - 4(1)(-1)$

$= 4 + 4$

$= 8$ ∴ 2 irrational solutions

$x = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$ ✓

27. $x^2 - 2x + 3 = 0$

$b^2 - 4ac = (-2)^2 - 4(1)(3) = 4 - 12 = -8$ ∴ 2 complex solutions

$$x = \frac{2 \pm \sqrt{-8}}{2} = \frac{2 \pm 2i\sqrt{2}}{2} = 1 \pm i\sqrt{2} \checkmark$$

31. $2t^2 + 1 = 6t \longrightarrow 2t^2 - 6t + 1 = 0$

discriminant $= b^2 - 4ac = (-6)^2 - 4(2)(1) = 36 - 8 = 28$

$\therefore$ 2 irrational solutions

$$x = \frac{6 \pm \sqrt{28}}{4} = \frac{6 \pm 2\sqrt{7}}{4} = \frac{3 \pm \sqrt{7}}{2} \checkmark$$