

Algebra 2 Class Notes

Weds 9-12-12

(33) $13K^2 + 18K + 57 = 2K + 10K^2$

$$\frac{3K^2}{3} + \frac{16K}{3} = -\frac{57}{3}$$

$$K^2 + \frac{16}{3}K + \left(\frac{8}{3}\right)^2 = -\frac{171}{9} + \frac{64}{9}$$

$$\left(K + \frac{8}{3}\right)^2 = -\frac{107}{9}$$

$$K + \frac{8}{3} = \pm \frac{i\sqrt{107}}{3}$$

$$K = \frac{-8 \pm i\sqrt{107}}{3}$$

Complex
a+bi
 $\sqrt{-107}$
 $\sqrt{-1 \cdot 107}$
 $\sqrt{-1} \cdot \sqrt{107}$
i

?
107
18

CK

$$13\left(\frac{-8+i\sqrt{107}}{3}\right)^2 + 18\left(\frac{-8+i\sqrt{107}}{3}\right) + 57 \stackrel{?}{=} 2\left(\frac{-8+i\sqrt{107}}{3}\right) + 10\left(\frac{-8+i\sqrt{107}}{3}\right)^2$$

$$13\left[\frac{64 - 16i\sqrt{107} - 107}{9}\right] + \frac{-144 + 18i\sqrt{107}}{3} + 57$$

$$13\left[\frac{-43 - 16i\sqrt{107}}{9}\right] + (-48) + 6i\sqrt{107} + 57$$

$$13\left[\frac{-43 - 16i\sqrt{107}}{9}\right] + 6i\sqrt{107} + 9 \quad \left\{ \begin{array}{l} \text{LEFT} \\ \text{SIDE} \end{array} \right.$$

↓

↓ CONTINUE ON NEXT PAGE

$$\begin{array}{r}
 (13)(43) \quad (13)(16) \\
 \downarrow \quad \downarrow \\
 -\frac{559}{9} - \frac{208i\sqrt{107}}{9} + \frac{54i\sqrt{107}}{9} + \frac{81}{9}
 \end{array}$$

common denom

CL
LEFT
SIDE
CONTINUED

$$= \frac{-478 - 154i\sqrt{107}}{9}$$



see
RIGHT
SIDE
ON
NEXT
pg.

$$2 \left(\frac{-8 + i\sqrt{107}}{3} \right) + 10 \left(\frac{-8 + i\sqrt{107}}{3} \right)^2 \quad \left\{ \begin{array}{l} \text{Right} \\ \text{Side} \end{array} \right.$$

$$= \frac{-16 + 2i\sqrt{107}}{3} + 10 \left[\frac{64 - 16i\sqrt{107} - 107}{9} \right]$$

$$= \frac{-16 + 2i\sqrt{107}}{3} + 10 \left[\frac{-43 - 16i\sqrt{107}}{9} \right]$$

$$\begin{array}{ccc} \downarrow & & \downarrow \\ = & \frac{-16 + 2i\sqrt{107}}{3} + & \frac{-430 - 160i\sqrt{107}}{9} \end{array}$$

$$= \frac{-48 + 6i\sqrt{107}}{9} + \frac{-430 - 160i\sqrt{107}}{9}$$

$$= \frac{-478 - 154i\sqrt{107}}{9}$$

$$(29) \quad -79 = 8x - 4x^2$$

$$\frac{4x^2}{4} - \frac{8x}{4} = \frac{79}{4}$$

$$x^2 - 2x + (1)^2 = \frac{79}{4} + \frac{4}{4}$$

$$\downarrow$$

$$(x-1)^2 = \frac{83}{4}$$

$$x-1 = \pm \frac{\sqrt{83}}{2}$$

$$x = 1 \pm \frac{\sqrt{83}}{2} = \frac{2 \pm \sqrt{83}}{2}$$

$$\frac{2}{2}$$

Common
Denominator