

SULTAN QABOOS UNIVERSITY
DEPARTMENT OF MATHEMATICS AND STATISTICS

Math3207

Fall 2013

Quiz 3

Time: 30 minutes

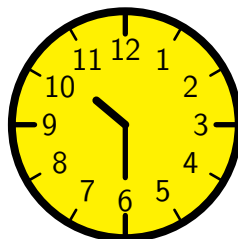
Name:..... Section: ID Number:.....

Find all solutions (real or complex) of the following equations: (4+5+6 points)

- (i) $x^3 = i$ (ii) $x^4 - 6x^3 + 9x^2 - 1 = 0$ (iii) $x^3 + x^2 - 9x - 1010 = 0$.

Hint: In (iii), you may define $c_1 = \frac{31}{6}$, $c_2 = \frac{1}{6}\sqrt{849}$, and use the fact that

$$\left(\frac{27187}{54} + \frac{311}{18}\sqrt{849}\right)^{\frac{1}{3}} = c_1 + c_2, \quad \left(\frac{27187}{54} - \frac{311}{18}\sqrt{849}\right)^{\frac{1}{3}} = c_1 - c_2.$$



End of Quiz

Best Wishes

Total= 15 Points