

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICS, STATISTICS AND ACTUARIAL SCIENCE

SCHOOL BASED

UNIT CODE: BMA 1111

UNIT TITLE: BASIC MATHEMATICS

CAT 2 (take -away assignment)

28TH AUG 2014

1. If α and β are the roots of $z^2 - 10z + 29 = 0$, find α and β by using the formula. Verify that $\alpha + \beta = 10$ and $\alpha\beta = 29$
2. Convert $\frac{1}{(1+2i)^2}$ to polar form and evaluate
3. Use half angle formulas to find $\sin \varphi$, $\cos \varphi$ and $\tan \varphi$ for $\varphi = 15^\circ$
4. Prove that $\tan \varphi \sin \varphi + \cos \varphi = \sec \varphi$
5. Solve the simultaneous equations:
$$\frac{x+2}{y-4} + \frac{2(y-4)}{(x+2)} + 3 = 0$$
 and $x - y = 3$
6. A committee of ten is to be chosen from nine men and six women. In how many ways can it be formed if at least four women are to be in the committee
7. Solve for x in
$$3^{2x+1} + 9^x = 30$$