

6)

- a) For the complex number $z = 5 - 12i$ find the complex conjugate \bar{z} and the absolute value (i.e. modulus) $|z|$.
- b) Find all of the solutions in the complex numbers to the equation

$$z^2 + \frac{1}{2}z + \frac{1}{4} = 0$$

Write your solutions in the form $a + bi$.

- c) Find the value of

$$(1 - i)^{20}$$

using DeMoivre's formula (for taking n -th powers of a complex number). Write your answer in both of the forms $a + bi$ and polar form.

NOTE: No credit will be given for any answer not showing all of the work or not using the formula for n -th powers.