(b) Compute the most general solution to the differential eqn

$y'' + y = 2y'$ with the initial condition

$y(0) = 1$; $y(1) = 0$

Solution: $y = e^x - x e^x$ i.e. $c_1 = 1$; $c_2 = -1$

PROBLEM 4

If $z_1 = 2 + i$, $z_2 = 3 - 2i$ and $z_3 = -\frac{1}{2} + \sqrt{\frac{3}{2}}\, i$

evaluate each of the following.

(a) $|3z_1 - 4z_2|$

Solution:

$$|3z_1 - 4z_2| = |3(2+i) - 4(3-2i)| = |6 + 3i - 12 + 8i|$$

$$= |-6 + 11i| = \sqrt{(-6)^2 + (11)^2} = \sqrt{157}$$