SOLUTION TO PROBLEM 5 ON MIDTERM 3

You should start by simplifying the complex number, like this:

$$\frac{-2\sqrt{3} + i2}{-\sqrt{3} + i} = \frac{2(-\sqrt{3} + i)}{-\sqrt{3} + i} = 2.$$

Thus, $r = 2$ and $\theta = 0$.

Naturally, you can also do it the hard way by not simplifying the complex number:

$$\frac{-2\sqrt{3} + i2}{-\sqrt{3} + i} \cdot \frac{-\sqrt{3} - i}{-\sqrt{3} - i} = \frac{6 - i2\sqrt{3} + i2\sqrt{3} + 2}{4} = 2.$$

As you can see the result is the same.