Homework (algebra): set 1.

1. Simplify (to the rectangular form):

$$\frac{(2+i)^3+(3+2i)^2}{(1+i)^2(2-3i)}.$$

2. Interpret the geometric meaning of the equation and plot the corresponding set on the complex plane:

$$|(3+4i)z+5| = 20$$

3. Solve:

$$\frac{2+i}{z-1+4i} = \frac{1-i}{2z+i}.$$

4. Express the following number in the polar and the rectangular form: $(1+i\sqrt{3})^{31}$.

5. Solve:

$$z^2+2(1-i)z-1-2i = 0.$$

Please write the solutions clearly (by hand) on A4 paper and give it to me before 30/10/2018. Every solution will be given 1 point (correct, minor error possible), 0.5 pt. (good idea, but not all correct), 0 pt. (nothing worthy). The maximum for this homework is 5 pts.