**1A/B Introducing i**

1. Simplify
2. $\left(2+5i\right)+(7+3i)$
3. $\left(2-5i\right)-(5-11i)$
4. $6\left(1+3i\right)$
5. Write √-36 in terms of i
6. Write √-28 in terms of i

1. Solve the Equation
2. $x^{2}+9=0$
3. $x^{2}+6x+25=0$

**1C Multiplying Complex Numbers**

1. Simplify
2. $(2+3i)(4+5i)$
3. $(7-4i)^{2}$
4. $(2-3i)(4-5i)(1+3i)$
5. Simplify
6. $i^{3}$
7. $i^{4}$
8. $(2i)^{5}$

**1D Complex Conjugates**

1. Write down the complex conjugate of:
2. $2+3i$
3. $5-2i$
4. $1-i\sqrt{5}$
5. Find z + z\*, and zz\*, given that:
6. z = 2 – 7i
7. z = 2√2 + i√2
8. Write the following in the form $a+bi$
9. $\frac{(10+5i)}{(1+2i) }$
10. $\frac{(5+4i)}{(2-3i) }$

**1E Complex Roots of Quadratics**

1. Find the quadratic equation that has roots 3 + 5i and 3 – 5i

 **1F Complex Roots of Cubics & Quartics**

1. Given that -1 is a root of the equation:

$$x^{3}-x^{2}+3x+k=0$$

Find the other two roots of the equation.

Notes on Solutions for Cubic & Quartic Equations

1. Given that 3 + i is a root of the quartic equation:

$$2x^{4}-3x^{3}-39x^{2}+120x-50=0$$

Solve the equation completely.