

**Factoring  $x^2 + bx + c$**  Guide Notes**Steps in Factoring  $x^2 + bx + c$ :**

**Step 1:** split  $x^2$  into its factor,  $x$  and  $x$ .

**Step 2:** Split the last term  $c$ , into two factors whose product is  $c$  and whose sum is  $b$ .

**Step 3:** Write the usual binomial factor such as  $x^2 + bx + c = (x + c)(x + c)$  where  $bx$  is the sum of the middle term (inner and outer term).

**Sample problem 1:** Factor the following polynomials in  $x^2 + bx + c$  form.

1.  $a^2 + 5a + 6$

2.  $x^2 - 4x + 4$

3.  $b^2 - 8b + 16$

4.  $y^2 + 15y + 56$

5.  $x^2 - 20x - 300$