



**Q4** If  $x^2 - y^2 = 42$  and  $x - y = 6$ , find the value of  $(x + y)^2$ . [2]

**Q5** If  $x^2 + y^2 = 73$  and  $xy = 24$ , find the value of  $3(x - y)^2$ . [2]

**Q6** Write a rational expression with trinomials as both the numerator and denominator and which is able to simplify to an expression with binomials as both the numerator and denominator. Show that your rational expression satisfies the conditions. [3]

**Q7** For the expression  $x^2 + x + k$ ,  $k \neq 0$ , are there any values of  $k$  for which the expression can be factorised? Explain your answer. [2]

**Bonus**

**Q8** Factorise  $x^2 + 4x + 4 - y^2$  completely. [2]

**Q9** Factorise  $a^4 + 2a^3 + 3a^2 + 2a + 1$  completely. [2]