

# Solution notes

p2 q1a 2000  
d  
e

Discrete  
Maths

(a) There are many ways of proving that  $x^5 - 3x^2 + 2x - 1 = 0$  has no integer solutions. The simplest is by cases on whether  $x$  is even or odd: either way, the polynomial evaluates to an odd number. An alternative approach is to note that if  $x(x^4 - 3x + 2) = 1$  then  $x = 1$  and  $x = -1$ , leaving just two cases to check.

Software  
Engineering

(d) Bookwork. Briefly, formal specifications help to eliminate ambiguities and inconsistencies from the design. They can improve communication between teams and help with testing. They are not primarily intended for proving programs correct.

Found  
CS

(e) Bookwork.