

### Senior Test 2 Question 1

- $(n-1)(n+1) = 5 \cdot 2^m$  1 mark
- $m > 0$ , so both factors are even 1 mark
- gcd is 2, so one divisible by at most 2 1 mark
- $n-1 = 2$  or  $n-1 = 10$  or  $n+1 = 2$  or  $n+1 = 10$  and see which cases give solutions 3 marks
- $n = 9$ , which gives  $m = 4$ . Must give  $m$  or loses a mark. 1 mark