

MATHEMATICS ENRICHMENT CLUB.
Problem Sheet 1, April 30, 2016

1. What is the last digit of 2^{4^6} .
2. Shaun has to climb up 10 steps. He can either climb 1 step or 2 steps at each time. How many possible ways are there for Shaun to climb the stairs?
3. Consider the following logical statements:
 - (a) If this statement is true, then the other statement is false.
 - (b) If this statement is true, then the other statement is false.

How many of them is/are true?

4. Let $S = \frac{\rho}{x^2 + 4x + 5} - \frac{\rho}{x^2 + 2x + 5}$, for some real number x . Find the maximum value of S .
- 5.

Senior Questions

1.