Oct 20, 2003

MATH 113 HOMEWORK 2

1) Find a formula for each of the following expressions and prove your formula using induction.

i) $1^2 + 2^2 + \cdots + n^2$.

ii) $1^2 - 2^2 + 3^2 - 4^2 + \cdots + (-1)^{n-1} n^2$.

iii) $\left(1 - \frac{1}{2^2}\right)\left(1 - \frac{1}{3^2}\right) \cdots \left(1 - \frac{1}{n^2}\right)$.

In each of the above expressions n is a positive integer.

2) Solve Exercises 6 and 7 on page 64.

3) Evaluate the integral $\int_{-2}^{5} |x^2 - 2x| dx$.

4) Solve Exercise 14 on page 114.

Homework solutions are due to class time on 27 October 2003 Monday.