

Mathematical Induction and Proof of Recursion

10/10/2020

Prove Algebra 2 Mathematically Induction (MATH 201)

PROVE BY INDUCTION 1.1, 1.2, 1.3, 1.4, 1.5, 1.6

Exercise 1.1.1

1. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$ 2. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$ 3. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$
4. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$ 5. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$
6. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$ 7. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$
8. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$ 9. $(1+2+\dots+n)^2 = 1^3 + 2^3 + \dots + n^3$

Exercise 1.2

10. Prove using induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$ $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$
11. Prove using long division: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$ $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$

Exercise 1.3

12. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$
13. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$

Exercise 1.4

14. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$

n	(n-1)^2	(n+1)^2
1	0	4
2	1	9
3	4	16
4	9	25
5	16	36

15. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$

n	(n-1)^2	(n+1)^2
1	0	4
2	1	9
3	4	16
4	9	25
5	16	36

16. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$

Exercise 1.5

17. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$

Exercise 1.6

18. Prove by induction theorem: $(n^2 - 1)^2 - (n-1)^2 = (n+1)^2$