

Name: _____

Date: _____

Algebra II H Review 11.1-11.3, 11.5-11.7

Directions: Do all of your work on a separate piece of paper. Calculator allowed on test, but must show work on binomial expansion and you should know the formulas for nth terms and sums of arithmetic and geometric sequences.

- Given: 5,16,27,38,49....
 - Find a_{27} .
 - Find S_{32} .
 - Write (b) in summation notation with the index starting at 1.
- An auditorium has 16 rows of seats. There are 14 seats in the first row, 20, seats in the second, 26 in the third and so on.
 - How many seats are there in all 16 rows?
 - If there are 410 seats, how many rows (so no longer assuming 16 rows) are there in all?
- The fifth term of a geometric sequence is 129.6 and the seventh is 46.656.
 - What term is 6.0466176?
 - What is the sum of the infinite series from (a) above?
 - What is S_5 ?
- Write 15.25252525... in summation notation and as a fraction.
- Find the expression for the nth apparent term.
 - 7, 14, 23, 34, ...
 - 3,-9,-27,-81,...
 - $5, 10, \frac{15}{2}, \frac{20}{6}, \frac{25}{24}, \dots$
- Expand out $(2y^2 - 3)^4$.
- Find the coefficient of y^4 in $(3y + 2)^{10}$.
- In the National Baseball League, the pitcher usually bats ninth. If this is the case, how many batting orders is it possible for a manager to use if he has 15 players who can bat in the other 8 spots?
- In how many ways can a committee of 4 students be formed from a pool of 7 students?
- How many permutations are there of the letters in the word DEFINITION.
- Simplify $\frac{(2x)!}{(2x+3)!}$.
- Given the geometric sequence with $a_3 = 32$, $a_6 = 256/27$,
 - Find the nth term formula.
 - Find the sum of the infinite geometric series.
 - Find the fifth partial sum.
- Find the next three terms of the recursive sequence defined by $a_{n+2} = 3(a_n) - a_{n+1}$, $a_0 = 3$, $a_1 = 4$.
- David and Emily started a college fund for Evan on 12/26/2001. On that date and every subsequent month for the next 18 years, they put \$200 into an account that earned 4% interest compounded monthly. What will the account be worth on Evan's 18th birthday?

Answers

1. a) 291
b) 5616
c) Sigma with $n = 1$ below, 32 on top and $11n - 6$ next to it.
2. a) 944
b) 10
3. a) 11
b) 2500
c) 2305.6
4. $10 + \text{sigma}$ with $n = 1$ on bottom, infinity on top, $520(1/100)^n$ next to sigma. As a fraction, $1510/99$.
5. a) $(n+2)^2 - 2$
b) $-(3^n)$
c) $5n/(n-1)!$
6. $16y^8 - 96y^6 + 216y^4 - 216y^2 + 81$
7. 1088640
8. 259459200
9. 35
10. 302400
11. $1/((2x+1)(2x+2)(2x+3))$
12. $108(2/3)^n$
13. 5, 7, 8.
14. \$63,328.88