SATPREP Name_____

Assignment : Binomial and Sequence

Date_____

Find each coefficient described.

1) Coefficient of y^2 in expansion of $(2y + 1)^5$

2) Coefficient of y^6 in expansion of $(y^2 + 4)^4$

3) Coefficient of v^8 in expansion of $(1 - 4v^4)^4$

4) Coefficient of m^4 in expansion of $(2 + m)^5$

5) Coefficient of x^6 in expansion of $(x^2 - 2)^5$

6) Coefficient of y^8 in expansion of $(3y^4 + 1)^4$

7) Coefficient of x^9 in expansion of $(x^3 + 2)^5$

8) Coefficient of v^3 in expansion of $(v - 3)^5$

Given two terms in an arithmetic sequence find the common difference, the first five terms, and the 52nd term.

9) $a_{17} = 143$ and $a_{34} = 313$

10) $a_{14} = -86$ and $a_{38} = -278$

11) $a_{10} = \frac{5}{2}$ and $a_{30} = \frac{25}{2}$

12) $a_{18} = -31$ and $a_{39} = -60.4$

Given the second term and the common ratio of a geometric sequence find the 8th term and the explicit formula.

13) $a_2 = 8,\ r = 2$

14) $a_2 = 2,\ r = 2$

15) $a_2 = 20,\ r = 5$

16) $a_2 = -2,\ r = -2$

Answers to Assignment : Binomial and Sequence

1) 40
2) 16
3) 96
4) 10
5) 40
6) 54
7) 40
8) 90

9) Common Difference: $d = 10$
First Five Terms: $-17,\ -7,\ 3,\ 13,\ 23$
$a_{52} = 493$

10) Common Difference: $d = -8$
First Five Terms: $18,\ 10,\ 2,\ -6,\ -14$
$a_{52} = -390$

11) Common Difference: $d = \frac{1}{2}$
First Five Terms: $-2,\ -\frac{3}{2},\ -1,\ -\frac{1}{2},\ 0$
$a_{52} = \frac{47}{2}$

12) Common Difference: $d = -1.4$
First Five Terms: $-7.2,\ -8.6,\ -10,\ -11.4,\ -12.8$
$a_{52} = -78.6$

13) $a_8 = 512$
Explicit: $a_n = 4 \cdot 2^{n-1}$

14) $a_8 = 128$
Explicit: $a_n = 2^{n-1}$

15) $a_8 = 312500$
Explicit: $a_n = 4 \cdot 5^{n-1}$

16) $a_8 = -128$
Explicit: $a_n = (-2)^{n-1}$