

Worksheet 43 - Binomial Theorem

Date _____ Period _____

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

- 1) Kali has homework assignments in six subjects. She only has time to do four of them.
- 2) Shawna has homework in six subjects. She is deciding what order to complete them in.
- 3) The batting order for seven players on a 8 person team.
- 4) The student body of 215 students wants to elect two representatives.

Expand completely.

- 5) $(3x - 1)^4$
- 6) $(2x - 1)^5$

Find each term described.

- 7) 4th term in expansion of $(v^2 - 2u^2)^7$
- 8) 5th term in expansion of $(2m - 3n^2)^5$
- 9) 2nd term in expansion of $(b^4 - 2a)^7$
- 10) 4th term in expansion of $(2b - a^2)^6$

Find each coefficient described.

11) Coefficient of $x^{16}y^{12}$ in expansion of $(2x^4 - y^4)^7$

12) Coefficient of b^9 in expansion of $(2b^3 + 1)^6$

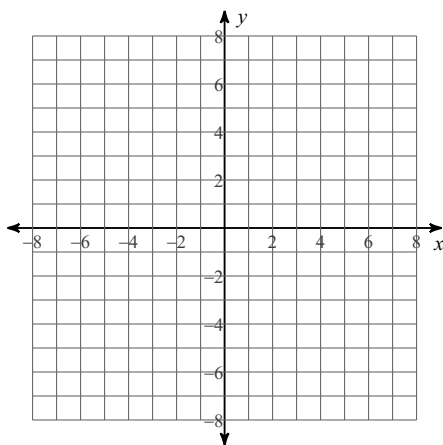
Find the probability of each event.

13) You've purchased a lottery ticket and your numbers are: 4-8-3. A lottery official randomly selects three balls from a set of eight balls that are numbered from #1 to #8. To win, your numbers must match the selected numbers in order. What is the probability of winning the lottery?

14) A gardener has eleven identical-looking tulip bulbs, of which seven will produce yellow tulips and four will become pink. He randomly selects and plants seven of them and then gives the rest away. When the flowers start to bloom, what is the probability that all of them are yellow?

Identify the domain and range of each. Then sketch the graph.

15) $f(x) = \log_{\frac{1}{4}}(2x - 1) + 3$



16) $f(x) = \log_4(3x + 3) - 2$

