

1. Find the middle term of $(x^2 - 2y)^8$.

2. Find the term containing x^3 from $(5x - 3y)^9$.

3. Expand: $\left(x^2 - \frac{x}{2}\right)^6$.

4. A jar contains 3 red, 4 green, and 5 blue marbles. Three marbles are randomly selected, at the same time (hint: combinations).

Find the probability that:

a) all three are green b) exactly 1 marble is red

c) at least 2 marbles are blue

5. Fifteen students enter a photo contest. In how many ways can 1st, 2nd, and 3rd places be awarded?

6. There are 9 pizza toppings to choose from. How many ways can 1 or 2 or 3 toppings be chosen?