

Chapter 11 Extra Review

ALL

1. There are 14 girls on the varsity softball team.

a) How many different batting line ups of 9 girls can he make from the 14 girls?

$${}_{14}P_9$$

b) Of the 14 girls, 3 are pitchers, 5 are infielders, 2 are catchers, and the remaining are outfielders.

How many teams can be made if the team of 9 consists of 1 pitcher, 1 catcher, 4 infielders and 3 outfielders?

$${}^3C_1 \cdot {}^2C_1 \cdot {}^5C_4 \cdot {}^4C_3$$

2. Expand. $(\sqrt{2} - \sqrt{3})^4$

$${}^4C_0 (\sqrt{2})^4 (\sqrt{3})^0 = 4$$

$${}^4C_1 (\sqrt{2})^3 (-\sqrt{3})^1 = 4 \cdot 2\sqrt{2} (-\sqrt{3}) = -8\sqrt{6}$$

$${}^4C_2 (\sqrt{2})^2 (\sqrt{3})^2 = 6 \cdot 2 \cdot 3 = 36$$

$${}^4C_3 (\sqrt{2})^1 (-\sqrt{3})^3 = 4\sqrt{2} (-3\sqrt{3}) = -12\sqrt{6}$$

$${}^4C_4 (\sqrt{2})^0 (-\sqrt{3})^4 = 9$$

$$49 - 20\sqrt{6}$$

3. Out of the 30 men competing in the bachelorette, how many ways can they finish 1st, 2nd or 3rd?

$${}_{30}P_3$$

4. If the probability that it rains on any day is 35% for 5 days straight, what is the probability it rains on at least one of those five days?

$$1 - (.65)^5 = 88.4\%$$

5. Simplify $((5n + 3)!4!)/((5n+1)!6!)$.

$$\frac{(5n+3)(5n+2)}{30} = \frac{25n^2 + 25n + 6}{30}$$

6. For the chapter 11 test, I have a test bank of questions. In the bank I have 5 questions from 11.1, 3 questions from 11.2, 2 questions from 11.3, 6 questions from 11.5, 4 questions from 11.6 and 4 questions from 11.7. How many ways can I make a test with 2 questions from each section?

$$5C_2 \cdot 3C_2 \cdot 2C_2 \cdot 6C_2 \cdot 4C_2 \cdot 4C_2$$