

We have 5 Blue pens and 6 Green pens.

(1) How many ways are there to select 3 Blue pens and 1 Green pen?

$$\binom{5}{3} \cdot \binom{6}{1} = \frac{5 \cdot 4}{2} \cdot \frac{6}{1} = 60$$

(2) How many ways are there to select 4 pens of one color?

$$\binom{5}{4} + \binom{6}{4} = \frac{5}{1} + \frac{6 \cdot 5}{2} = 20$$

Challenge questions for extra credit:

(A) if we select 4 pens at random, what is the probability that they are of one color?

$$\frac{20}{\binom{11}{4}} = \frac{20}{\frac{11 \cdot 10 \cdot 9 \cdot 8}{4 \cdot 3 \cdot 2}} = \frac{2}{33}$$

(B) if we select 4 pens at random, what is the probability that they are not one color?

$$1 - \frac{2}{33} = \frac{31}{33}$$

(C) simplify your answers in (A) and (B) to simple fractions. *done above*

End of the quiz