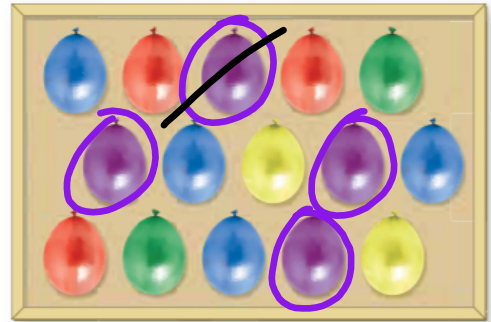


17. **CARNIVAL** At a carnival game, you randomly throw two darts at the board and break two balloons. What is the probability that both of the balloons you break are purple?



$$P(\text{purple } 1^{\text{st}}) \cdot P(\text{purple } 2^{\text{nd}})$$

$$\frac{\overset{2}{\cancel{4}}}{\underset{5}{\cancel{18}}} \cdot \frac{\overset{3}{\cancel{14}}}{\underset{7}{\cancel{14}}} = \boxed{\frac{2}{35}}$$

23. **LANGUAGES** There are 16 students in your Spanish class. Your teacher randomly chooses one student at a time to take a verbal exam. What is the probability that you are *not* one of the first four students chosen?

$$P(\text{not } 1^{\text{st}}) \cdot P(\text{not } 2^{\text{nd}}) \cdot P(\text{not } 3^{\text{rd}}) \cdot P(\text{not } 4^{\text{th}})$$

$$\begin{array}{l} \text{Not} \\ \text{You} \end{array} \rightarrow \frac{15}{16} \cdot \frac{14}{15} \cdot \frac{13}{14} \cdot \frac{12}{13}$$

$$\begin{array}{l} \text{Lots of} \\ \text{cancelling} \end{array} = \frac{12 \div 4}{16 \div 4} = \boxed{\frac{3}{4}}$$

25. **PROBLEM SOLVING** Your teacher divides your class into two groups, and then randomly chooses a leader for each group. The probability that you are chosen to be a leader is $\frac{1}{12}$. The probability that both you and your best friend are chosen is $\frac{1}{132}$.
- No - probability would be 0 if you were in the same group. One leader per group.*
- (a) Is your best friend in your group? Explain.
- (b) What is the probability that your best friend is chosen as a group leader?
- (c) How many students are in the class?

$$P(\text{you}) \cdot P(\text{friend}) = P(\text{both})$$

$$\frac{1}{12} \cdot p = \frac{1}{132}$$

$$p = \frac{1}{11}$$

$$\frac{1}{12} \rightarrow \text{you}$$

$$\rightarrow \text{total in your group}$$

$$\frac{1}{11} \rightarrow \text{friend}$$

$$\rightarrow \text{total in friend's group}$$

$$12 + 11 = 23$$