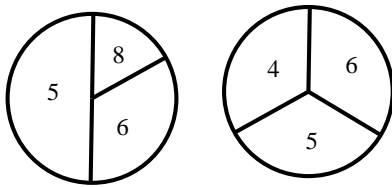


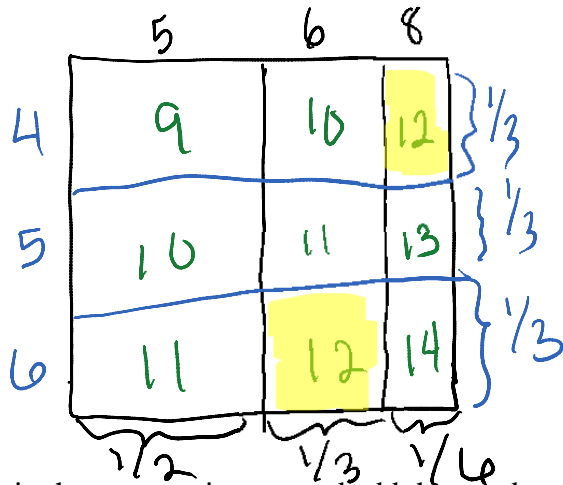
Probability problems to practice:

1. I spin these two spinners, and add the numbers to find a score:



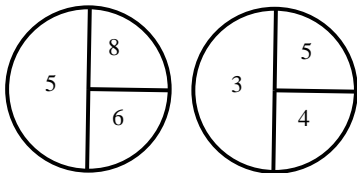
a. If you break the process of spinning the spinners into sequential steps, what would those steps be? *Spin first the left spinner and then spin the right spinner.*

b. Show how to find the probability of getting exactly 12 points using an area diagram.



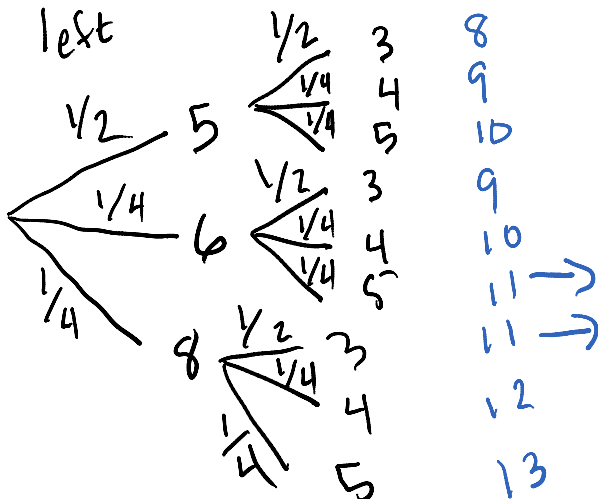
$$\begin{aligned} & \frac{1}{3} \times \frac{1}{6} + \frac{1}{3} \times \frac{1}{3} \\ &= \frac{1}{18} + \frac{1}{9} \times \frac{2}{2} \\ &= \frac{1}{18} + \frac{2}{18} = \frac{3}{18} = \frac{1}{6} \end{aligned}$$

2. I spin these two spinners, and add the numbers to find a score:



a. If you break the process of spinning the spinners into sequential steps, what would those steps be? *First spin the left spinner, then spin the right spinner*

b. Show how to find the probability of getting exactly 11 points using a tree diagram.

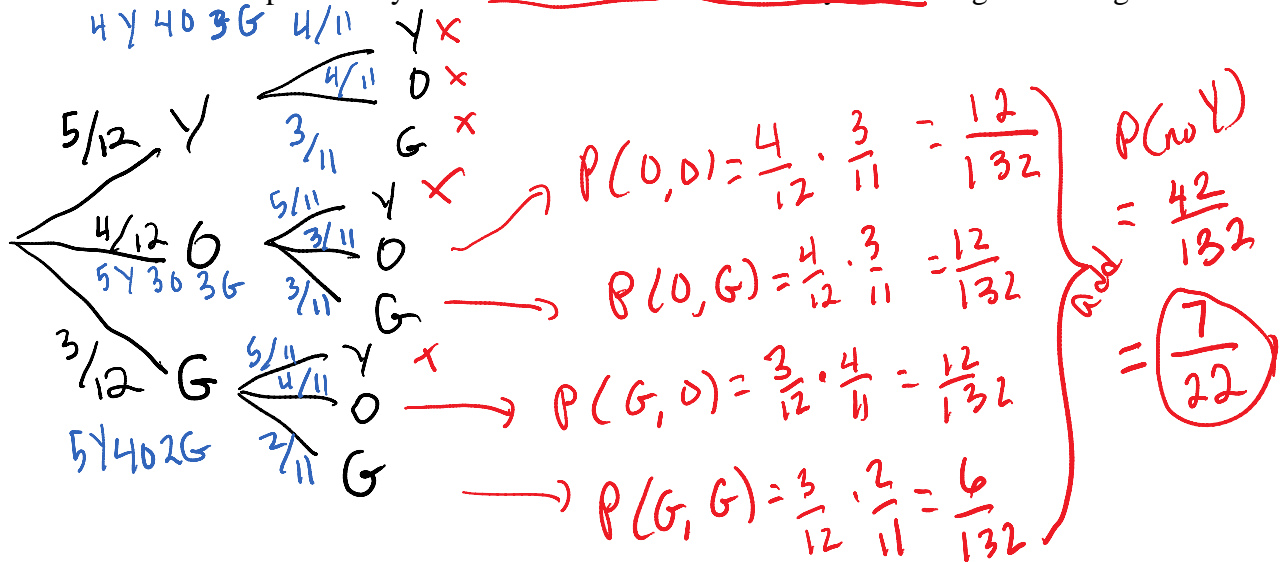


$$\begin{aligned} & \frac{1}{4} \cdot \frac{1}{4} = \frac{1}{16} \\ & \frac{1}{4} \cdot \frac{1}{2} = \frac{1}{8} \\ & \frac{1}{16} + \frac{1}{8} = \frac{1}{16} + \frac{2}{16} = \frac{3}{16} \end{aligned}$$

3. Mike had some Skittles. There were 5 yellow, 4 orange and 3 green ones. He absentmindedly (and without looking at the colors) ate 2 skittles. What is the probability that neither of the ones he ate were yellow?

a. If you break the process of eating the Skittles into sequential steps, what would those steps be?
Eat one Skittle and then eat another

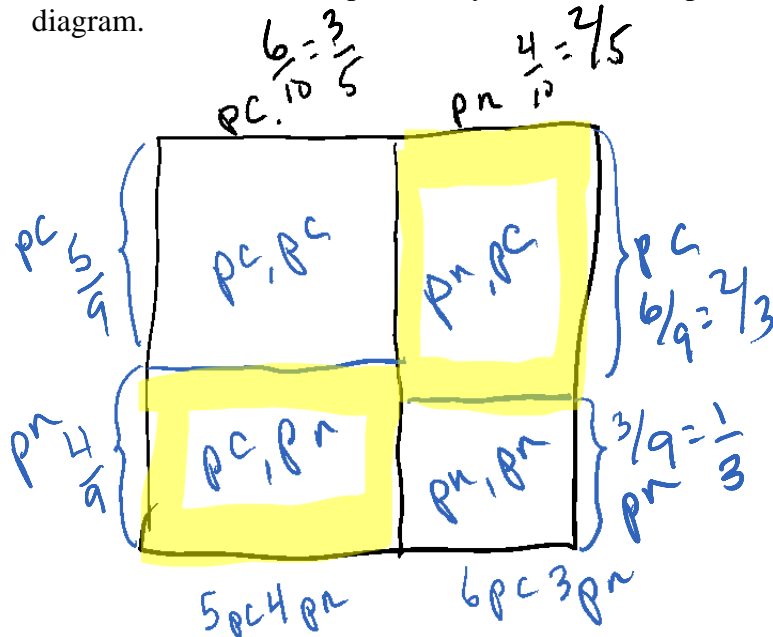
b. Show how to find the probability that neither of the Skittles were yellow using a tree diagram.



4. Alice had 6 pencils and 4 pens in her pencil box. 2 things (pencils or pens) fell out of the pencil box. What is the probability that one was a pen and the other was a pencil?

a. If you break the process of things falling out of the box into sequential steps, what would those steps be?
One thing falls out and then the other

b. Show how to find the probability that one was a pen and the other was a pencil using an area diagram.



$P(\text{one of each}) =$

$$\frac{4}{9} \cdot \frac{3}{5} + \frac{6}{9} \cdot \frac{2}{5}$$

$$= \frac{12}{45} + \frac{12}{45} = \frac{24}{45} = \frac{8}{15}$$

5. I roll a 4 sided and a 6 sided die. Make a chart or area diagram and use it to solve:

a. What is the probability that the sum of the numbers is a multiple of 3?

b. What is the probability that the sum is at least 8?

c. What is the probability that the sum is at most 4?

d. What sum or sums are most likely?

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |

a. $\frac{6}{24} = \frac{1}{3}$

b. $\frac{6}{24} = \frac{1}{3}$

c. $\frac{1}{24} = \frac{5}{12}$

d. 5, 6, 7 are most likely.