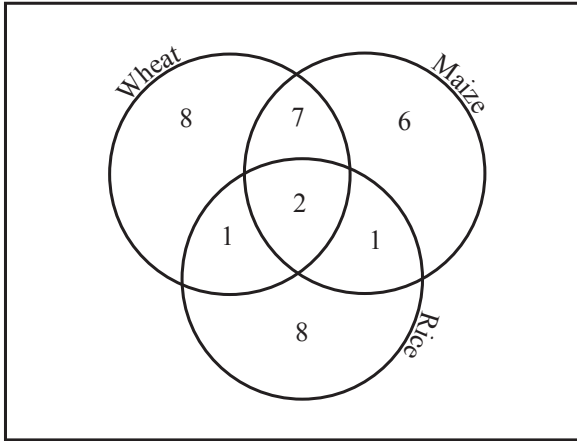


1a.



1b. $43 - 33 = 10$

1c. $8 + 8 + 6 = 22$

1d. 7

1e. $8 + 1 + 6 = 15$

2. For n any natural number we have

$$\begin{aligned} 3 &\longrightarrow 9 \\ 9 &\longrightarrow 15 \\ 15 &\longrightarrow 21 \\ 21 &\longrightarrow 27 \\ &\vdots \\ 6n - 3 &\longrightarrow 6n + 3 \end{aligned}$$

3. For n any natural number we have

$$\begin{aligned} 0 &\longrightarrow 1 \\ 2 &\longrightarrow 2 \\ 4 &\longrightarrow 3 \\ 6 &\longrightarrow 4 \\ &\vdots \\ 2n - 2 &\longrightarrow n \end{aligned}$$

4. Probability of a 4 = $\frac{13}{100} = 0.13$

5. Probability of yellow light = $\frac{5}{85} \approx 0.0588$.

6. Probability of no 5 = $\frac{48}{52} \approx 0.9231$

7. 4 : 2 against.

8. $\frac{7}{11}$

9. $\frac{7}{15}(\$10) + \frac{2}{15}(-\$6) + \frac{4}{15}(-\$1) + \frac{1}{15}(-\$50) + \frac{1}{15}(\$0) \approx \0.27 .

10a. By guessing, expected value is $\frac{1}{5}(10) + \frac{4}{5}(-3) = -\frac{2}{5}$ points; so it would not pay off.

10b. By guessing, expected value is $\frac{1}{3}(10) + \frac{2}{3}(-3) = 1\frac{1}{3}$ points; so it now is worth guessing.

11a. Trivial.

11b. $\frac{1}{9}$

11c. $\frac{1}{2}$