# Estimating Probabilities Using Data

**Directions:** Use the data chart below to answer the questions that follow. Express your answers as a fraction, decimal, or a percent. Round all of your decimal answers to the thousandths decimal place and all of your percent answers to the nearest tenth of a percent.

**DATA:** Moira randomly selected gummy worms from a jar.
The table below shows the number of each flavor of gummy worms in the jar.

| Flavor | Cherry | Raspberry | Lemon | Lime | Grape | Watermelon |
|--------|--------|-----------|-------|------|-------|------------|
| Number | 15 | 12 | 8 | 8 | 17 | 10 |

If Moira were to randomly select one gummy worm from the jar…

1.) What is the estimate for the probability of her selecting a watermelon gummy worm from the jar?

2.) What is the estimate for the probability of selecting a cherry gummy worm from the jar?

3.) What is the estimate for the probability of selecting a lemon *or* lime gummy worm from the jar?

4.) What is the estimate for the probability of selecting a non-watermelon gummy worm from the jar?

5.) What is the estimate for the probability of selecting a pineapple gummy worm from the jar?

6.) Which flavor of gummy worm is most likely to be selected?

7.) Which event is **least** likely to occur? Circle your answer.

   **Event A:** Selecting a lemon, lime, *or* raspberry gummy worm.

   **Event B:** Selecting a cherry *or* grape gummy worm.

   **Event C:** Selecting a watermelon *or* a raspberry gummy worm.

8.) If 30 pineapple gummy worms were added to the jar, what would happen to the probability of selecting a cherry gummy worm? Explain your answer.

1.) What is the estimate for the probability of her selecting a watermelon gummy worm from the jar?

$$\frac{10}{70} \text{ or } \frac{1}{7} \text{ or } \textbf{0.143} \text{ or } \textbf{14.3\%}$$

2.) What is the estimate for the probability of selecting a cherry gummy worm from the jar?

$$\frac{15}{70} \text{ or } \frac{3}{14} \text{ or } \textbf{0.214} \text{ or } \textbf{21.4\%}$$

3.) What is the estimate for the probability of selecting a lemon *or* lime gummy worm from the jar?

$$\frac{16}{70} \text{ or } \frac{8}{35} \text{ or } \textbf{0.229} \text{ or } \textbf{22.9\%}$$

4.) What is the estimate for the probability of selecting a non-watermelon gummy worm from the jar?

$$\frac{60}{70} \text{ or } \frac{6}{7} \text{ or } \textbf{0.857} \text{ or } \textbf{85.7\%}$$

5.) What is the estimate for the probability of selecting a pineapple gummy worm from the jar?

$$\frac{0}{70} \text{ or } \textbf{0} \text{ or } \textbf{0\%}$$

6.) Which flavor of gummy worm is most likely to be selected?

**Grape**

7.) Which event is **least** likely to occur? Circle your answer.

**Event A:** Selecting a lemon, lime, *or* raspberry gummy worm. $\frac{28}{70}$

**Event B:** Selecting a cherry *or* grape gummy worm. $\frac{32}{70}$

**Event C:** Selecting a watermelon *or* a raspberry gummy worm. $\frac{22}{70}$

8.) If 30 pineapple gummy worms were added to the jar, what would happen to the probability of selecting a cherry gummy worm? Explain your answer.

**The probability of selecting a cherry gummy worm would decrease from $\frac{15}{70}$ to $\frac{15}{100}$ (or from 21.4% to 15%). Explanations will vary.**