

Name Key

CW Day 38

Date _____

1. A spinner with regions numbered 1 to 4 is spun and a coin is tossed. Both the number spun and whether the coin lands heads or tails is recorded. Write the sample space.

1, 2, 3, 4, H, T

2. Three coins are flipped simultaneously and it is recorded whether each coin lands heads or tails. List the sample space.

HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

3. A game consists of tossing a coin and rolling a six-sided die. The results can be recorded easily; for example, if heads shows on the coin and a 4 shows on the die, record this as H4. List the sample space for the results of this game.

H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6

4. Exactly one of three contestants will win a game show. The probability that Terry wins is 0.25 and the probability that Chris wins is 0.65. What is the probability that Toni wins?

$$.25 + .65 + x = 1$$

$$.9 + x = 1$$

$$x = .1 \text{ or } 10\%$$

5. If the probability that Kerry gets an "A" in English class is 0.82, what is the probability that Kerry does not get an "A"?

$$1 - .82 = .18 \text{ or } 18\%$$

6. Suppose three fair coins are tossed and the number of heads that appear is recorded. What is the probability of getting exactly two heads? Hint: Make a tree diagram!!

$$\frac{3}{8}$$

7. A pair of fair dice is rolled and the sum of the faces showing is recorded. What is the probability of getting a sum greater than 9?

$$\frac{10}{36} + \frac{11}{36} + \frac{12}{36} = \frac{33}{36} = \frac{11}{12}$$

9. Find the probability of drawing a three or a heart from a regular deck of cards.

$$\frac{4}{52} + \frac{13}{52} - \frac{1}{52} = \frac{16}{52} = \frac{4}{13}$$

10. A student is taking a five-question True/False test. If the student chooses answers at random, what is the probability of getting all questions correct?

$$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{32} = 3.125\%$$

11. Suppose a trial consists of rolling a single die and reporting the number that is rolled. What are the possible outcomes? Are they equally likely?

2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 No, because different prob

12. Suppose a trial consists of rolling two dice and reporting the sum of the numbers rolled. What are the possible outcomes? Are they equally likely?

1, 2, 3, 4, 5, 6 Yes, because they all have the same prob.

13. The mean weight of a collection of potatoes in a shipment to a fruit market is 1.3 lbs, with a standard deviation of 0.35 lbs. The distribution of weights is approximately normal. What is the probability that one potato chosen at random will weigh more than 1.65 lbs?



16%

or

$$z = \frac{1.65 - 1.3}{.35}$$

$$z = 1.00$$

$$\approx 84.13$$

$$100\% - 84.13\%$$

$$15.87\%$$

14. The mean length of time, per week, that students at a certain school spend on their homework is 24.3 hours, with a standard deviation of 1.4 hours. Assuming the distribution of study times is normal, what percent of students spend more than 25.238 hours per week on homework?

$$z = \frac{25.238 - 24.3}{1.4} = 0.67 \rightarrow 0.7486 \rightarrow 1 - 0.7486 = 0.2514 \rightarrow 25.14\%$$

15. The shelf life of a battery produced by one major company is known to be normally distributed, with a mean life of 3.5 years and a standard deviation of 0.75 years. What is the upper quartile of battery shelf life?

$$UQ = 3.5 + (0.67)(0.75)$$

$$UQ = 3.5 + 0.5025$$

$$UQ = 4.0025$$