

Formative Assessment- Probability

Name: Key Period     

1. Define the following:

- Sample space - set of all outcomes
- Combination - elements selected from a set w/out regard to the order.
- Mutually Exclusive - occurrence of an event excludes the possibility that another event will also occur
- Event - a set of outcomes

2.a. You have a standard deck of cards. What is the probability that you draw a jack <sup>or</sup> a spade?

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

b. You have a standard deck of cards. What is the probability that you draw a heart, don't put it back and then draw another heart?

$$\frac{13}{52} * \frac{12}{51} = \frac{156}{2652} = \boxed{\frac{1}{17}}$$

3. There are 15 books by Nicholas Sparks at the library and 8 books by J.K. Rowling. How many ways could you check out 3 Nicholas Sparks books and 2 J.K. Rowling books?

$${}^{15}C_3 \cdot {}^8C_2 = 12,740$$

4. a. There are 30 students in the hallway. How many ways could you line these students up?

$$30!$$
$$2.65 \times 10^{32}$$

b. How many ways could you line these students up, if Sally and Ben have to be next to each other?

$$29! \cdot 2!$$
$$1.77 \times 10^{31}$$