

And, Or, and More! Calculating Compound Probability

40 Total

Number of Cards	Animal on Card
8	lion
6	giraffe
10	monkey
12	elephant
4	panda bear

1. A game includes a deck of cards with an animal picture on each card. The table shows the numbers of each type of card. Suppose each time a card is chosen, the card is replaced before another card is chosen.
- a. A child draws out two cards. What is the probability that the first card will have a monkey on it and the second card will have an elephant on it?

$$\frac{10}{40} \cdot \frac{12}{40} = \boxed{\frac{3}{40}}$$

- b. A child draws out two cards. What is the probability that the first card will have a lion on it or the second card will have a giraffe on it?

$$\frac{8}{40} + \frac{6}{40} = \boxed{\frac{14}{40}}$$

- c. A child draws out two cards. What is the probability that the second card will have a panda bear on it?

$$\frac{40}{40} \cdot \frac{4}{40} = \boxed{\frac{1}{10}}$$

1st card 2nd card

- d. A child draws out three cards. What is the probability that the first card will have a lion on it, and the third will have a monkey on it?

$$\frac{8}{40} \cdot \frac{40}{40} \cdot \frac{10}{40} = \boxed{\frac{1}{20}}$$

1st card 2nd card

- e. A child draws out five cards. What is the probability that they will all have a different animal on them?

$$\frac{8}{40} \cdot \frac{6}{40} \cdot \frac{10}{40} \cdot \frac{12}{40} \cdot \frac{4}{40} =$$

$$\frac{1}{5} \cdot \frac{3}{20} \cdot \frac{1}{4} \cdot \frac{3}{10} \cdot \frac{1}{10} = \boxed{\frac{9}{40000}}$$

40 Total

Number	Animal on Card
8	lion
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12	elephant
4	panda bear

2. A game includes a deck of cards with an animal picture on each card. The table shows the numbers of each type of card. When a card is chosen, it is not replaced in the deck.

- a. A child draws out two cards. What is the probability that the first card will have an elephant on it and the second card will have a lion on it?

$$\frac{12}{40} \cdot \frac{8}{39} = \boxed{\frac{4}{65}}$$

- b. A child draws out two cards. What is the probability that the first card will have a monkey on it or the second card will have a panda bear on it?

$$\frac{10}{40} + \frac{4}{39} = \boxed{\frac{55}{156}}$$

- c. A child draws out three cards. What is the probability that the second card will have a lion on it?

$$\frac{40}{40} \cdot \frac{8}{39} \cdot \frac{38}{38} = \boxed{\frac{8}{39}}$$

1st card 2nd card 3rd card

- d. A child draws out two cards. What is the probability that the first card will have a panda bear on it or the second card will have a giraffe on it?

$$\frac{4}{40} + \frac{6}{39} = \boxed{\frac{33}{130}}$$

- e. A child draws out three cards. What is the probability that the second and third cards will display elephants?

$$\frac{40}{40} \cdot \frac{12}{39} \cdot \frac{11}{38} = \boxed{\frac{22}{247}}$$