

Name: _____

Date: _____

Mutually Exclusive Events Algebra 1 Homework

Applications

1. A person is shopping for a new snowmobile. The probability that someone buys an Arctic Cat is 39%, a Polaris is 27% and a Ski-Doo is 18%. Which of the following is the probability that this person buys either an Arctic Cat or a Ski-Doo?

(1) 84% (3) 57%

(2) 66% (4) 45%

2. A single, fair 6-sided die is thrown. Which of the following is the probability that it lands on a multiple of 2 or a five?

(1) $\frac{2}{3}$ (3) $\frac{1}{3}$

(2) $\frac{1}{6}$ (4) $\frac{5}{6}$

3. A pair of dice are thrown. Which of the following represents the probability that a sum of 11 is thrown?

(1) $\frac{11}{36}$ (3) $\frac{1}{36}$

(2) $\frac{6}{11}$ (4) $\frac{1}{18}$

4. Two cards are drawn at random from a standard deck without replacement. Which of the following represents the probability that the two cards drawn are a five and a six (in either order)?

(1) $\frac{8}{663}$ (3) $\frac{4}{663}$

(2) $\frac{2}{13}$ (4) $\frac{4}{13}$

5. Two cards are drawn at random from a standard deck without replacement. Which of the following represents the probability that the two cards drawn are either both kings or both queens?

(1) $\frac{2}{13}$ (3) $\frac{2}{221}$

(2) $\frac{1}{221}$ (4) $\frac{8}{13}$

6. A bag of marbles contains 8 red marbles and 6 yellow marbles. Two marbles are drawn out of the bag at random without replacement. What is the probability that

(a) first a red marble then a yellow marble are drawn out?

(b) two red marbles are drawn out?

(c) two yellow marbles are drawn out?

(d) two marbles of the same color are drawn out?

Reasoning

7. A particular history class at Arlington High School has the following breakdown of students by grade and by gender:

Grade	Gender
6 Freshmen	3 Girls and 3 Boys
16 Sophomores	10 Girls and 6 Boys
8 Juniors	5 Girls and 3 Boys
30 Total Students	18 Girls and 12 Boys

One student is chosen at random from the 30 total students to give a speech the next day. Find the probability that the student chosen is:

(a) A girl

(b) A sophomore

(c) A girl or a sophomore

(d) Why is the probability that you calculated in part (c) not the sum of the probabilities that you found in parts (a) and (b)?

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Non-Mutually Exclusive Events
Algebra 1
Homework

Applications

1. If one card is pulled from a standard deck of cards, which of the following is the probability that the card is a red card or an ace?

(1) $\frac{15}{52}$

(3) $\frac{28}{52}$

(2) $\frac{30}{52}$

(4) $\frac{26}{52}$

2. If a child tossed a fair six-sided die, which of the following is the probability that an odd number or a number greater than 3 would be showing?

(1) $\frac{5}{6}$

(3) $\frac{1}{3}$

(2) $\frac{2}{3}$

(4) $\frac{1}{6}$

3. The probability that Latisha orders French fries at lunch is .32 and the probability that she orders a grilled cheese sandwich and fries is .65. If the probability that she orders just a grilled cheese sandwich is .76, what is the probability that she will order a grilled cheese or fries?

4. If a person is picked at random from the general population there is a 0.52 probability the person is a woman, a 0.56 probability the person is younger than 40 and a 0.78 probability that the person is a woman or is younger than 40. What is the probability that a person picked at random is a woman and younger than 40?

Reasoning

5. The probability it is going to rain on Saturday is 50% and the probability it is going to rain on Sunday is 80%. Assuming that these two events are independent, find the following:

(a) The probability it will rain on Saturday and Sunday.

(b) The probability it will rain Saturday or Sunday.

6. Two events A and B have probabilities given below:

$$P(A) = \frac{1}{3}$$

$$P(B) = \frac{1}{2}$$

$$P(A \text{ or } B) = \frac{5}{6}$$

Are events A and B mutually exclusive or non-mutually exclusive? Justify your answer. Hint – Determine the probability of A and B .