Try now

A bag contains 25 marbles: 10 black, 13 red, and 2 blue. A marble is drawn from the bag at random.

1. Explain why the events "getting a black marble" and "getting a red marble" are mutually exclusive.

A marble can not be both black and red. Since the 2 events can not overlap they are Exclusive.

2. What is the probability of getting a red or a blue marble?

total: 50

$P(\text{Red}) + P(\text{Blue})$

$\frac{13}{50} + \frac{2}{50} = \frac{15}{50} = \frac{3}{10} = .3 = 30\%$

3. A car approaching an intersection has a 0.1 probability of turning left and a 0.2 probability of turning right. Explain why the events are mutually exclusive. What is the probability that the car will turn?

A car has to turn right or left, it cant do both.

* this problem is already giving you the prob as a dec.

$P(\text{left}) + P(\text{right})$

$.1 + .2 = .3 = 30\% = 3/10$

Numbers 1–10 are written on cards and placed in a bag. Find each probability.

4. choosing a number greater than 5 or choosing an odd number

this is inclusive because a number can be greater than 5 and odd.

1 2 3 4 5
6 7 8 9 10

$P(>5) + P(\text{odd}) - P(>5 \text{ & odd})$

$\frac{5}{10} + \frac{5}{10} - \frac{2}{5} = \frac{8}{10} = \frac{1}{4} = .25 = 25\%$

5. choosing an 8 or choosing a number less than 5

this is a mut. exclusive event because they both can not occur

1 2 3 4 5
6 7 8 9 10

$P(8) + P(<5)$

$\frac{1}{10} + \frac{5}{10} = \frac{6}{10} = \frac{4}{5} = .6 = 60\%$

Five years after 650 high school seniors graduated, 400 had a college degree and 310 were married. Half of the students with a college degree were married.

6. What is the probability that a student has a college degree or is married? INCLUSIVE!

one way to organize the data is to use a frequency table.

find the missing #'s by adding or subtracting from what is given

	Married	Not Married	Total
Deg.	200	200	400
No Deg.	110	140	250
Total	310	340	650

$P(\text{Deg}) + P(\text{Mar}) - P(\text{Deg} + \text{Mar})$

$\frac{400}{650} + \frac{310}{650} - \frac{200}{650} = \frac{51}{65} \approx .78 \approx 78\%$

7. What is the probability that a student has a college degree or is not married? INCLUSIVE!

	Married	Not Married	Total
Deg.	200	200	400
No Deg.	110	140	250
Total	310	340	650

$P(\text{Deg}) + P(\text{N. Mar}) - P(\text{Deg} + \text{N Mar})$

$\frac{400}{650} + \frac{340}{650} - \frac{200}{650} = \frac{54}{65} \approx .83 \approx 83\%$

8. What is the probability that a student does not have a college degree or is married? INCLUSIVE!

	Married	Not Married	Total
Deg.	200	200	400
No Deg.	110	140	250
Total	310	340	650

$P(\text{No Deg}) + P(\text{Mar}) - P(\text{No Deg} + \text{Mar})$

$\frac{250}{650} + \frac{310}{650} - \frac{110}{650} = \frac{9}{13} \approx .69 \approx 69\%$