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| 1. | A math teacher gave her class two tests. 25% of the class passed both tests and 42% of the class passed the first test. 1. Draw a Venn Diagram.
2. What percent of those who passed the first test also passed the second test?
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| 2. | A jar contains black and white marbles. Two marbles are chosen without replacement. The probability of selecting a black marble and then a white marble is 0.34, and the probability of selecting a black marble on the first draw is 0.47. 1. Draw a Tree Diagram
2. What is the probability of selecting a white marble on the second draw, given that the first marble drawn was black?
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| 3. | The probability that it is Friday and that a student is absent is 0.03. Since there are 5 school days in a week, the probability that it is Friday is 0.2. 1. Draw a Venn Diagram
2. What is the probability that a student is absent given that today is Friday?
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| 4. | At Kennedy Middle School, the probability that a student takes Technology and Spanish is 0.087. The probability that a student takes Technology is 0.68. 1. Draw a Venn Diagram
2. What is the probability that a student takes Spanish given that the student is taking Technology?
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| 5. | The Venn Diagram below illustrates P(A), P(B), and P(A and B). Which two sections would have to be divided to find P(B|A)?   [IMAGE] |
| 6. | A bag contains 12 red M&M*s*, 12 blue M&Ms, and 12 green M&Ms.  What is the probability of drawing two M&Ms of the same color in a row? (Hint: Draw a Tree Diagram)  |
| 7. | In a school of 1200 students, 250 are seniors, 150 students take math, and 40 students are seniors and are also taking math.1. Make a table or Venn Diagram
2. What is the probability that a randomly chosen student who is a senior, is taking math?
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| 1. Solution:   |

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| P(Second|First) |   =   | P(First and Second) |   =   | 0.25 |   =   | 0.60 |   =   | 60% |
| P(First) | 0.42 |

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| 2.Solution:   |

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| P(White|Black) |   =   | P(Black and White) |   =   | 0.34 |   =   | 0.72 |   =   | 72% |
| P(Black) | 0.47 |

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| 3. Solution:   |

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| P(Absent|Friday) |   =   | P(Friday and Absent) |   =   | 0.03 |   =   | 0.15 |   =   | 15% |
| P(Friday) | 0.2 |

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| 4.Solution: |

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| P(Spanish|Technology) |   =   | P(Technology and Spanish) |   =   | 0.087 |   =   | 0.13 |   =   | 13% |
| P(Technology) | 0.68 |

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**6.**   *Intuitive:*  There are a total of 36 M&Ms in the bag.  You draw a blue M&M and eat it.  There are now 11 blue M&Ms remaining in the bag.  There are 35 total M&Ms now remaining.  You will now need to draw another blue M&M.  The conditional probability will be:
                          *P*(Draw blue M&M*|*First M&M was blue) = .

*Using the formula:*
*P*(*A* and *B*) = 
*P*(*A*) =  
*P*(Draw same as first color M&M*|*First M&M color) =  *P*(*B* | *A*) = 

**7.**  These questions can be confusing.  It sounds, at first read, that they are asking for the probability of choosing a student who is a senior **and**who is taking math.  Not quite right!
It helps to re-word the question into:
        Find the probability that the student is taking math, given that the student is a senior.
*B* = the student is taking math *n*(*A*) = the student is a senior = 250.
*n*(*A* and *B*) = the student is a senior and is taking math = 40.

