Let's Review

1. What is the probability of rolling a die twice and getting a 5 both times?

$.02\overline{7}$ $2.\overline{7}\%$ $2\frac{7}{9}$

2. What is the probability of rolling a die twice and getting an even number on both rolls?

P (even, even) = $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

.25   25%

3. What is the probability of rolling a die twice and getting a 3 on the first roll and a prime number on the second roll?

P (3, prime) = $\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$

4. You have a hat with the numbers 1-20 in it. What is the probability of someone picking the number 7, replacing the number, and picking 7 again?

$\frac{1}{20} \times \frac{1}{20} = \frac{1}{400}$ .0025

5. You have a hat with the numbers 1-20 in it. What is the probability of someone picking the numbers 2 or 12, replacing the number, and then picking a single digit number?

$\frac{2}{20} \times \frac{9}{20} = \frac{18}{400} = \frac{9}{200}$ 0.45

6. You have a hat with the numbers 1-20 in it. What is the probability of someone picking the number 5, not replacing the number, and then picking the number 2?

P (5, 2) = $\frac{1}{20} \times \frac{1}{19} = \frac{1}{380}$

.0026315   .3%

A career in the medical field might be neat!

A recent study by the American Pediatrics Association showed that 45% of children under the age of three years old are likely to get ear infections, while 20% are likely to get strep throat. Complete the table to determine the following probabilities.

	Ear infections (0.45)	No ear infections (0.55)
Strep throat (0.2)	$.45 \times .2 = .09$ $\frac{9}{100}$ 9%	$.2 \times .55 = .11$ $\frac{11}{100}$ 11%
No strep throat (0.8)	$.8 \times .45 = .36$ $\frac{36}{100} = \frac{9}{25}$ 36%	$.8 \times .55 = .44$ $\frac{44}{100} = \frac{11}{25}$ 44%

1. What is the probability that a child under the age of three will have both an ear infection and strep throat?

     .09 $\frac{9}{100}$ **9%**

2. What is the probability that a child under the age of three will have an ear infection but not have strep throat?

     .36 $\frac{36}{100} = \frac{9}{25}$ **36%**

3. What is the probability that a child under the age of three will not have an ear infection but will have strep throat?

     .11 $\frac{11}{100}$ **11%**

4. What is the probability that a child under the age of three will not have an ear infection nor will they have strep throat?

     .44 $\frac{44}{100} = \frac{11}{25}$ **44%**

A recent study released by the *Journal of the American Medical Association* presented findings that showed that 70% of all Americans over the age of 72 are likely to have a stroke and 60% are likely to break at least one bone. Complete the table to determine the following probabilities.

	Stroke (0.7)	No stroke (0.3)
No broken bones (0.4)	$.4 \times .7 = .28$ 28% $\quad \frac{28}{100} = \frac{7}{25}$	$.3 \times .4 = .12$ 12% $\quad \frac{12}{100} = \frac{3}{25}$
Broken bones (0.6)	$.7 \times .6 = .42$ 42% $\quad \frac{42}{100} = \frac{21}{50}$	$.3 \times .6 = .18$ 18% $\quad \frac{18}{100} = \frac{9}{50}$

5. What is the probability that someone over the age of 72 will have both a stroke and a broken bone?

   .42   **42%** $\frac{42}{100} = \frac{21}{50}$

6. What is the probability that someone over the age of 72 will have a stroke but not break a bone?

   .28   **28%** $\frac{28}{100} = \frac{7}{25}$

7. What is the probability that someone over the age of 72 will not have a stroke but will break a bone?

   .18   **18%** $\frac{18}{100} = \frac{9}{50}$

8. What is the probability that someone over the age of 72 will not have a stroke nor will they have a broken bone?

   .12   **12%** $\frac{12}{100} = \frac{3}{25}$