When you roll a pair of dice:

How many different sums are possible when you roll a pair of dice?

2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 11 different sums

Which sum do you think is least likely to occur?

2 and 12 they are the smallest and largest sum

Which sum do you think is most likely to occur?

a sum near the middle like 6, 7, or 8

Sums

	2	3	4	5	6	7	8	9	10	11	12	total
1st hr	16	30	46	61	75	89	67	52	48	31	19	534
3rd hr	11	15	18	37	45	52	35	30	27	22	9	301
total	27	45	64	98	120	141	102	82	75	53	28	835

- P(rolling a sum of 9) = $\frac{82}{835} = 9.8\%$
- P(rolling a sum of 3) = $\frac{45}{835} = 5.4\%$
- P(rolling a sum of 7) = $\frac{141}{835} = 16.9\%$

Probability Experiment:

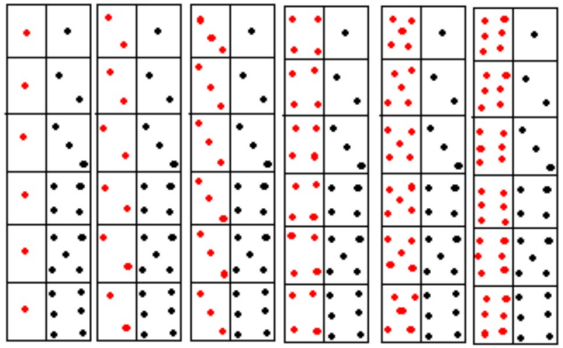
Probability of getting a certain sum when rolling a pair of dice.

- Work in pairs.
- Your pair will roll two dice a total of 50 times and record the sum each time.
- Use your results to answer the following probability questions as a percent (nearest tenth):
  - P(rolling a sum of 9) =
  - P(rolling a sum of 3) =
  - P(rolling a sum of 7) =
- Record your results after the 50 rolls on the Promethean board.

What is the sample space for a rolling a pair of dice?

Blue die \ Red die	1	2	3	4	5	6
1	1 1	1 2	1 3	1 4	1 5	1 6
2	2 1	2 2	2 3	2 4	2 5	2 6
3	3 1	3 2	3 3	3 4	3 5	3 6
4	4 1	4 2	4 3	4 4	4 5	4 6
5	5 1	5 2	5 3	5 4	5 5	5 6
6	6 1	6 2	6 3	6 4	6 5	6 6

There are [ ] possible outcomes when rolling a pair of dice.



Theoretical Probability of getting different sums when rolling a pair of dice.

Sum

	2	3	4	5	6	7	8	9	10	11	12	Total
# outcomes	1,1	1,2 2,1	1,3 3,1 2,2	1,4 4,1 3,2 2,3	1,5 5,1 2,4 3,3 4,2	1,6 6,1 3,4 2,5 4,3 5,2	2,6 6,2 3,5 4,4 5,3	3,6 6,3 4,5 5,4	4,6 6,4 5,5	6,5 5,6	6,6	
	1	2	3	4	5	6	5	4	3	2	1	36
Probability	1/36	2/36	3/36	4/36	5/36	6/36	5/36	4/36	3/36	2/36	1/36	
	2.8%	5.6%	8.3%	11.1%	13.9%	16.7%	13.9%	11.1%	8.3%	5.6%	2.8%	

	Experimental Probability:	Theoretical Probability:
○ P(rolling a sum of 9) =	9.8	5/36 = 13.9%
○ P(rolling a sum of 3) =	5.4	2/36 = 5.6%
○ P(rolling a sum of 7) =	16.9	6/36 = 16.7%

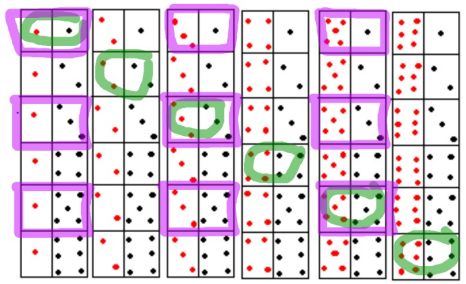
Find each probability as a fraction when rolling a pair of dice.

1. P(doubles) = $\frac{6}{36}$

2. P(odd product) = $\frac{9}{36}$

An odd product occurs when you multiply two odd #'s together.

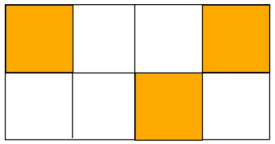
3. P(even product) = $\frac{27}{36}$



If 9 out of 36 results are odd then the remaining 27 results must be even. Since there are only two possible kinds of products, ODD or EVEN, in other words, together these two outcomes must make up the total of 36 outcomes.

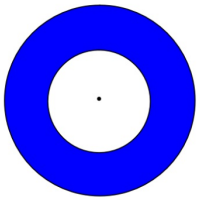
Geometric Probability = $\frac{\text{Area of Favorable Region}}{\text{Total Area}}$

Find the probability that if a dart lands in the rectangle that it lands in the shaded region. Give your answer as a percent. Round to the nearest hundredth as needed.



$\frac{3}{8} = 37.5\%$

Find the probability that if a dart lands on the target that it lands in the shaded region. Give your answer as a fraction.



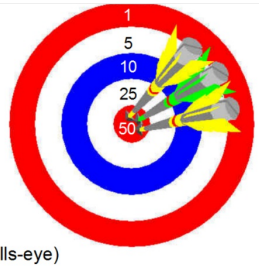
The radius of the smaller circle is 12 cm and the radius of the larger circle is 20 cm.

$= \frac{\text{Big } \odot - \text{Little } \odot}{\text{area of large circle}} = \frac{\pi(20)^2 - \pi(12)^2}{\pi(20)^2}$

$= \frac{400\pi - 144\pi}{400\pi} = \frac{256}{400}$

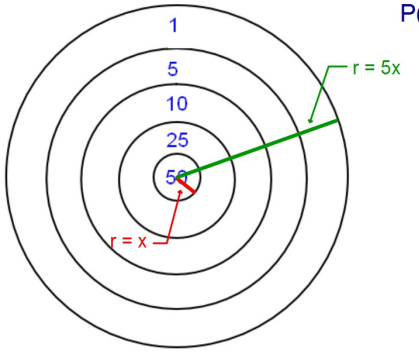
The radius of the bulls-eye is x cm and the width of each ring is also x cm.

Find each probability as a percent to the nearest tenth.



1. P(dart lands in the bulls-eye)

2. P(dart lands in the 10 point ring)

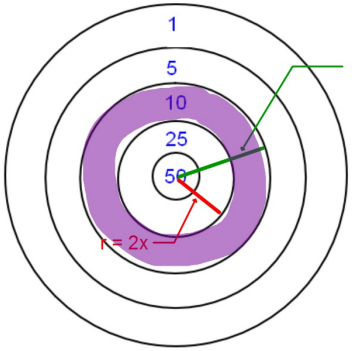


P(land in bulls-eye)=

$= \frac{\text{Area of Bulls-eye}}{\text{Area of the target}}$

$= \frac{\pi(x)^2}{\pi(5x)^2}$

$= \frac{\pi x^2}{\pi 25x^2} = \frac{1}{25} = 4\%$



P(land in 10 pt ring)=

outer circle - inner circle

$$= \frac{\text{Area of 10 pt ring}}{\text{Area of the target}}$$

$$= \frac{\pi(3x)^2 - \pi(2x)^2}{\pi(5x)^2}$$

$$= \frac{9\pi x^2 - 4\pi x^2}{25\pi x^2} = \frac{5}{25} = 20\%$$

You can now finish Hwk #15. Sec 1-6

Pages 43-44

Problems 11-14, 17, 19, 24-27, 34, 36, 40