12-3 Probability

std. 19.0

What is probability? $\frac{\text{favorable outcomes}}{\text{total \# of outcomes}}$

1 Roll 1 die. What is the probability that you roll a number that is less than or equal to 4?

$\frac{4}{6} = \frac{2}{3}$

44412 2

2 Roll 2 dice. What is the probability that the sum is 6 or 7?

Sample space: 1,5 3,3 6,1 3,4
5,1 1,6 4,3
2,4 2,5
4,2 5,2

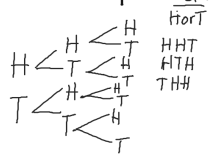
$\frac{11}{36} = \frac{6}{1st} \times \frac{6}{2nd}$

3 Flip 3 coins. What is the probability that 2 heads and 1 tail will be face up?

$2 \times 2 \times 2 = 8$ outcomes (H or T)

HHT
HTH
THH

$\frac{3}{8}$



4 Five boys and 3 girls are applying for a summer job. Three applicants will be selected.

Find the probability that:

a) all 3 are boys (B) b) 2 are girls (G) and 1 is a boy (B)

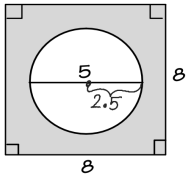
$\frac{3B}{\text{any } 3}$ $\frac{{}_5C_3}{{}_8C_3} = \frac{\frac{5!}{3!2!}}{\frac{8!}{3!5!}}$

$\frac{5 \cdot 4}{2} = \frac{10}{56} = \frac{5}{28}$

$\frac{{}_3C_2 \times {}_5C_1}{{}_8C_3}$ $\frac{2G \& 1B}{\text{any } 3}$

$\frac{3 \times 5}{56} = \frac{15}{56}$

5 Find the probability that a dart thrown at the target shown hits in the colored area.



$\frac{\square - \bigcirc}{\square} = \frac{64 - \pi(2.5)^2}{64}$

$\approx .69$