

Name: KEY

Class Period _____ Date / /

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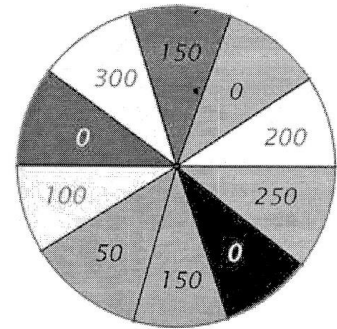
1. All colors on the wheel are equally spaced. What is the expected value of the wheel?

A. Create a Expected Value Table.

OUTCOME	0	50	100	150	200	250	300
PROBABILITY	0.3	0.1	0.1	0.2	0.1	0.1	0.1

B. What is the Expected Value? 120

C. What is the Expected Value after three tries? 360



2. Twenty-one trophies are in the trophy cabinet in the Bulldog lobby. If the tallest trophy is always in the middle. How many ways can they be arranged?

Please circle if this is Permutations or Combinations.

Answer to the question? 20! $\approx 2.4 \times 10^{18}$

3. In the state of Humming, license plates for automobiles consist of three letters followed by three digits.

a. How many license plates are possible if letters and digits may be repeated but the last digit cannot be zero? $26 \cdot 26 \cdot 26 \cdot 10 \cdot 10 \cdot 9 = 1,581,840$

b. How many license plates are possible if the letters and digits may not be repeated? $26 \cdot 25 \cdot 24 \cdot 10 \cdot 9 \cdot 8 = 1,232,000$

4. Suppose 40 cars start at the Indianapolis 500. In how many ways can there be one first place and one second place winner?

$$40P_2 = 1560$$

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(2)

5. Lisa always wants to be on a game show. Her favorite game show has a spinner with four equal colors, and two dice. To be on the game show she must get blue on the spinner and a number higher than ten on the dice. What is the chance that she will be selected to be on the game show?

$$\frac{1}{4} \cdot \frac{3}{36} = \frac{1}{48} \approx 0.021$$

6. Toda has been playing Halo Two for the upcoming game club. If he is good enough then he will be selected for the team. He must get one of the first two spots to be on the team. If only six people are competing what is the chance he will be selected to be on the team.

Please circle if this is Permutations of Combinations?

Answer to the question? 6nCr2 = 15

7. A \$5 bill, One \$20 bills, Three fifty dollar bills, and a hundred dollar bill is placed inside a glass jar for safe keeping. What is the expected value if you draw a bill from the glass jar at random?

Outcome	5	20	50	100
Probability	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{3}{6}$	$\frac{1}{6}$

A. Create a Expected Value Table.

B. What is the Expected Value. \$45.83

C. What is the Expected Value after three tries? \$137.50

8. 2. A dice game requires you sum 2 dice together. If you roll an odd number you win three times the amount show in the dice. If the number is even you owe 1.5 times the amount shown on dice.

Outcome	2(-1.5)	3(3)	4(-1.5)	5(3)	6(-1.5)	7(3)	8(-1.5)	9(3)	10(-1.5)	11(3)	12(-1.5)
Probability	$\frac{1}{36}$	$\frac{2}{36}$	$\frac{3}{36}$	$\frac{4}{36}$	$\frac{5}{36}$	$\frac{6}{36}$	$\frac{7}{36}$	$\frac{4}{36}$	$\frac{3}{36}$	$\frac{2}{36}$	$\frac{1}{36}$

A. Create a Expected Value Table. ↑

B. What is the Expected Value? 309

C. What is the Expected Value after five tries? 1545