

Name : _____ Date : _____

Fundamental Counting Principle: Permutations and Combinations

1. There are 7 sprinters in a 100-yard race. What are the different possibilities of getting a top three finish ?

2. How many different 4-digit even numbers can be written with 0,5,6,3,8,7?

3. A single dice is rolled twice. In how many ways can you roll a number that is prime, followed by a 6 ?

4. Evaluate

a) $6!$

b) $\frac{5!}{2!3!}$

c) $\frac{6!}{2!}$

d) $5C_2$

e) $9P_4$

f) $12P_3$

g) $\frac{2!3!}{4!}$

d) $7C_2$

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Answer

1. There are 7 sprinters in a 100-yard race. What are the different possibilities of getting a top three finish ?

210

2. How many different 4-digit even numbers can be written with 0,5,6,3,8,7?

540

3. A single dice is rolled twice. In how many ways can you roll a number that is prime, followed by a 6 ?

3

4. Evaluate

a) $6!$

b) $\frac{5!}{2!3!}$

c) $\frac{6!}{2!}$

d) $5C_2$

720

10

360

10

e) $9P_4$

f) $12P_3$

g) $\frac{2!3!}{4!}$

d) $7C_2$

3024

1320

$\frac{1}{2}$

21