

Bellwork Alg 2B Tuesday, March 27, 2018

Find the number of outcomes for each situation.

1. A restaurant offers four sizes of pizza, two types of crust, and eight toppings. How many possible combinations of pizza with one topping are there?

2. In how many different ways can 6 bicycles be parked in a row?

3. Grace loves to eat salad! How many salads can she put together if for \$3.99 she can pick out one type of lettuce from 3 choices, one vegetable from 4 choices and one dressing from 7 choices?

4. A shelf can hold 7 trophies. How many ways can the trophies be arranged if there are 10 trophies available?

5. How many different 4-letter radio station call letters can be made if:
 - a) The first letter must be a K or W and no letter may be repeated?

 - b) Repeats are allowed (but the first letter is a K or W)

6. You roll a die. Find each probability as a fraction without reducing.
 - a) $P(\text{factor of } 12)$
 - b) $P(\text{Prime})$

 - c) $P(\text{Multiple of three or odd})$
 - d) $P(\text{factor of } 20 \text{ and even})$

Find the number of outcomes for each situation.

1. A restaurant offers four sizes of pizza, two types of crust, and eight toppings. How many possible combinations of pizza with one topping are there?

$$\frac{4}{\text{size}} \cdot \frac{2}{\text{crust}} \cdot \frac{8}{\text{Toppings}} = 64$$

2. In how many different ways can 6 bicycles be parked in a row?

$${}_6P_6 \text{ or } 6! = 720$$

3. Grace loves to eat salad! How many salads can she put together if for \$3.99 she can pick out one type of lettuce from 3 choices, one vegetable from 4 choices and one dressing from 7 choices?

$$\frac{3}{\text{lettuce}} \cdot \frac{4}{\text{veg}} \cdot \frac{7}{\text{Dressing}} = 84$$

4. A shelf can hold 7 trophies. How many ways can the trophies be arranged if there are 10 trophies available?

$${}_{10}P_7 \text{ or } \frac{10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4}{1} = 604,800$$

5. How many different 4-letter radio station call letters can be made if:

- a) The first letter must be a K or W and no letter may be repeated?

$$\frac{2}{(K \text{ or } W)} \cdot 25 \cdot 24 \cdot 23 = 27,600$$

- b) Repeats are allowed (but the first letter is a K or W)

$$\frac{2}{K \text{ or } W} \cdot 26 \cdot 26 \cdot 26 = 35,152$$

6. You roll a die. Find each probability as a fraction without reducing.

- a) P(factor of 12)

$$\frac{5}{6} \quad \text{1, 2, 3, 4, 6}$$

- b) P(Prime)

$$\frac{3}{6} \quad \text{2, 3, 5}$$

- c) P(Multiple of three or odd)

$$\frac{4}{6} \quad \begin{matrix} \text{3} \\ \text{6} \end{matrix} \quad \begin{matrix} \text{1} \\ \text{3} \\ \text{5} \end{matrix}$$

- d) P(factor of 20 and even)

$$\frac{2}{6} \quad \begin{matrix} \text{2} \\ \text{4} \\ \text{10} \\ \text{20} \end{matrix} \quad \begin{matrix} \text{2} \\ \text{4} \\ \text{6} \end{matrix}$$