Algebra 2 Bellwork Thursday, May 14, 2015

Use the Multiplication Counting Principle to answer each question.

1. At the souvenir shop there are 15 hats, 20 t-shirts, and 9 jerseys. Your parents tell you that they will buy you one of each. How many different ways can you pick one of each?

2. On your I-pod you have the following songs: 12 Rock and Roll 13 Country 10 Rap
You only have time to listen to 3 songs. If you want one song from each category how many different ways can you do this?

3. You have to pick a password for your new email account. This password must contain 3 letters then 4 numbers.

a) How many different passwords are possible if letters and number CAN repeat?

b) How many different passwords are possible if letter CAN'T repeat but numbers CAN repeat?

c) Suppose letters and numbers CAN'T repeat and you can't use the letters o and I because they look like zero and one. How many different passwords are possible?

d) The computer recognizes capital letters as being different than lower-case letters. How many different passwords are possible if letters and numbers CAN repeat?

Algebra 2 Bellwork Thursday, May 14, 2015 ANSWERS

Use the Multiplication Counting Principle to answer each question.

1. At the souvenir shop there are 15 hats, 20 t-shirts, and 9 jerseys. Your parents tell you that they will buy you one of each. How many different ways can you pick one of each?

$15 \cdot 20 \cdot 9 =$ 2700 ways

2. On your I-pod you have the following songs: 12 Rock and Roll 13 Country 10 Rap
You only have time to listen to 3 songs. If you want one song from each category how many different ways can you do this?

$12 \cdot 13 \cdot 10 =$ 1560 ways

3. You have to pick a password for your new email account. This password must contain 3 letters then 4 numbers.

a) How many different passwords are possible if letters and number CAN repeat?

$26 \cdot 26 \cdot 26 \cdot 10 \cdot 10 \cdot 10 \cdot 10 =$ 175,760,000

b) How many different passwords are possible if letter CAN'T repeat but numbers CAN repeat?

$26 \cdot 25 \cdot 24 \cdot 10 \cdot 10 \cdot 10 \cdot 10 =$ 156,000,000

c) Suppose letters and numbers CAN'T repeat and you can't use the letters o and I because they look like zero and one. How many different passwords are possible?

$24 \cdot 23 \cdot 22 \cdot 10 \cdot 9 \cdot 8 \cdot 7 =$ 61,205,760

d) The computer recognizes capital letters as being different than lower-case letters. How many different passwords are possible if letters and numbers CAN repeat?

$52 \cdot 52 \cdot 52 \cdot 10 \cdot 10 \cdot 10 \cdot 10 =$ 1,406,080,000