Tuesday, October 23, 2012

TISK Problems

1. Multiply: $\frac{12}{5}\left(\frac{20}{3}\right)$
2. What is the probability of rolling a number greater than 7 on a 20-sided die?
3. Convert to a percent: $4\frac{5}{9}$

We will have 3 Mental Math questions today.

Homework: Counting Principle Practice worksheet

Homework Check

1) P(A) + P(B)
2) P(A) + P(B) – P(A and B)
3) 1
4) 1 – P(A)
5) Overlapping; $\frac{7}{10}$
6) Disjoint; $\frac{3}{5}$
7) $\frac{6}{7}$
8) $\frac{4}{7}$
9) $\frac{13}{20}$
10) $\frac{3}{8}$
11) P(not A) = 73%
12) P(not A) = 11%
13) P(not A) = $\frac{17}{26}$
14) P(not A) = $\frac{28}{41}$
15) There is a 64% chance of choosing someone who is a woman or a business major.
16) There is a 75% chance of selecting someone who is not a business major.
17) There is a 30% chance someone selected will be either a business major or has not chosen a major.

§9-5 Counting Principle

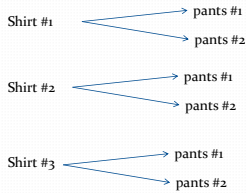- Jazmyne has packed 3 shirts, 2 pairs of pants, and a jacket for her camping trip. How many different outfits does she have?

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§9-5 Counting Principle

- Jazmyne has packed 3 shirts, 2 pairs of pants, and a jacket for her camping trip. How many different outfits does she have?

Shirt #1 → pants #1
→ pants #2

Shirt #2 → pants #1
→ pants #2

Shirt #3 → pants #1
→ pants #2

This is a *tree diagram*.

It is one way to determine how may options you have.

§9-5 Counting Principle

- Make a tree diagram to determine how many car packages you can choose from if you are buying a car with the following choices:
  - Color: blue, red, or white
  - Style: Van, Sedan, Convertible, SUV
  - Trim: Chrome, Wood

§9-5 Counting Principle

- As you can guess, these trees can get pretty complex.
  - Imagine you're trying to create a password for an internet account. The password must be 5 letters or numbers, you cannot use 0, and it is case sensitive. How many different 5-character passwords can you create?
  - Make a tree diagram…?
    - There must be an easier way!

§9-5 Counting Principle

- Counting Principle
  - The fundamental counting principle states that if you have *m* choices for the first option and *n* choices for the second option, then you have *mn* total choices.
- So, for our password problem… we have 52 letters and 9 digits for a total of 61 choices for the first character, and 61 choices for each character thereafter.
  - Thus we have $61 \cdot 61 \cdot 61 \cdot 61 \cdot 61$ total choices of passwords, or 844,596,301 total possible passwords.
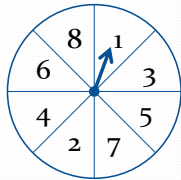
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§9-5 Counting Principle

- Minerva rolls a 10-sided die and spins the spinner below. What's the probability she gets the same number on each one?

$$P(same\ number) = \frac{8}{8} \cdot \frac{1}{10} = \frac{1}{10}$$