Name: _____ Date: _____

<u>Aim:</u> What is the math behind passwords?

How many online log-ins do you have? (For instance, Facebook, Instagram, Snapchat, Roslyn E-mail, Home E-mail, etc.)
Average amount of logins for an American computer user is 27 logins.

Why do you think it is not recommended that you use the same password for all of your online logins?
- If a hacker can get into one account, they can get into the other accounts.
- Identity theft issues

Sally Smith lives in Roslyn, New York with her family (father Stephen, mother Rita, brother Ryan, and a dog named Ginger). Her address is 123 Elm Street. Her birthday is June 27, 2007. She loves singing, ice-skating, and reading. She is creating a password for her e-mail, and she's considering which password she should use.

Websites often rate passwords as "Weak, Moderate, or Strong." For each password below, write whether the password is Weak(W), Moderate (M), or Strong(S).

Password	Rating	Why:	How long does it take for a hacker to crack this password?
Smith	Answers will vary	Answers will vary	Instantly
StRi0627	Answers will vary	Answers will vary	2 Hours
123ElmSt	Answers will vary	Answers will vary	2 Hours
SaSm123	Answers will vary	Answers will vary	1 Minute
06272007	Answers will vary	Answers will vary	3 Milliseconds
SSssrsrsg1230627!	Answers will vary	Answers will vary	93 trillion years!

howsecureismypassword.net

What are some things that Sally can do to make sure that she has a strong password?
- Use a combination of letters, numbers, and symbols
- Make the password longer

Plain-text password storing: your password is stored exactly as you write it

Hash password storing: transforms your password into another set of digits. If a hacker gets in, they can only see these randomized characters

Which password do you think is a stronger password (and therefore more challenging for a computer to hack?) password or p@$$w3rd! Why?
p@$$w3rd! would be stronger because the computer would not realize that it is spelling the word "password." Instead, the computer thinks that it is reading random characters.

If a computer hacker is trying to access your password that only uses full words, you are not as secure because he or she may use a dictionary attack.

Dictionary Attack: an attempted illegal entry to a computer system that uses a dictionary headword list to generate possible passwords

Brute Force Attack: a brute-force attack consists of an attacker submitting many passwords or passphrases with the hope of eventually guessing correctly