

2020 MA3 Week 6 Investigation

Question 1: Evaluate the following:

$$67^2$$

$$667^2$$

$$6667^2$$

What do you notice? Explain this clearly.

Use this knowledge to write down the value of 666667^2

What would the answer to $(\text{a million sixes followed by a } 7)^2$ be?

What logic would you use to explain this to someone?

Question 2: “If a link is broken, the entire chain breaks” – Yiddish Proverb

Hi!
My name is Bill Weights, founder of Super Scooper Ice Cream. I am offering you a gift certificate for our signature “Super Bowl” (a \$4.95 value) if you forward this letter to 10 people. When you have finished sending this letter to 10 people, a screen will come up. It will be your Super Bowl certificate. Print that screen out and bring it to your local Super Scooper Ice Cream store. The server will bring you the most wonderful ice cream creation in the world – a Super Bowl with three yummy ice cream flavours and three toppings!

This is a sales promotion to get our name out to young people around the country. We believe this project can be a success, but only with your help. Thank you for your support

Sincerely,
Bill Weights
Founder of Super Scooper Ice Cream

These chain emails rely on each person that receives the email to forward it on. Have you ever wondered how many people might receive the email if the chain remains unbroken? To figure this out, assume that it takes a day for the email to be opened, forwarded, and then received by the next person. On day 1, Bill Weights starts by sending the email out to his 10 closest friends. They each forward it to 10 people so that on day 2, it is received by 100 people. The chain continues unbroken.

Write the sequence.

Write the sequence as a power of 10.

How many people will receive the email on day n ?

How many people will receive the email on day 7?

If Bill gives away a Super Bowl that costs \$4.95 to every person that receives the email during the first week, how much will he have spent?