

Virus Alert

You need: a calculator

ACTIVITY

Mara, I need your help.
Schools have been sending in their emergency procedure reports, and a new virus has broken through my firewall.

The first step is to locate and halt the virus. Then we'll repair the damage and warn others who may be infected. After that, I'll update your security system.



1. The Discat virus has infected Edwin's address book. It has sent out messages to all the addresses, including those of many of the schools around New Zealand. When the messages are opened, the virus infects another set of address books.
 - a. Edwin has 600 addresses in his address book, and the virus attacks 15 percent of the original number every 2 minutes. How many addresses does it infect in each 2 minute period?
 - b. How long does it take the Discat virus to attach itself to all 600 addresses?
2.
 - a. Each of the 600 infected computers has an average of 180 addresses in its address book. How many computers in total does the Discat virus infect on its next round? (This is generation two of the virus attack.)
 - b. After it infects each computer in generation two, Discat again takes 2 minutes to attack 15 percent of their address books. How long does it take Discat to infect all of the computers in the next round?
3. Mara fixes Discat, and Edwin warns everyone in his address book. Unfortunately, a second virus, called Catdis, quickly follows. Catdis attaches itself to the first 10 addresses each time.
 - a. If Edwin's computer is the first generation to be infected, how many computers are likely to be infected after four generations?
 - b. How many generations of Catdis will it take before one million computers are infected?