

Two students who were both born on December 21st, the date of the winter solstice, decide that it would be great not to have to attend school on that day. Therefore, they start a rumor that schools will be closed to celebrate the winter solstice. So, on December 1st, one of the students told two of her friends that school would be closed. On the next day, each of these students tells 2 students and on consecutive days, each of the new students tells 2 more students and so on.

- a) How many students have heard the rumor on Day 10?
- b) On which day would all of the students have heard that school will be closed on the 21st?
- c) If there are 8,000 students in the school district, was the rumor started early enough for everyone to have heard it?