1. Mary has spiders and flies in her house. Yesterday she counted 5 spiders. Today she counted 8 spiders and 10 flies. The fly population triples every two days. Assuming that the number of spiders and flies in Mary's house grows exponentially, when will there be 20 times more flies than spiders in Mary's house ? Give the answer in days from today.

4. **[5 points per part]**

    (a) The city of Doublin has a population that doubles every 25 years. In the year 2000, its population was 6000.

        Write a function $f(t)$ for the population of Doublin, $t$ years after 2000.

    (b) The city of Tripli has a population that triples every 30 years. In the year 2016, its population was 4000 less than Doublin's.

        Write a function $g(t)$ for the population of Tripli, $t$ years after 2000.

    (c) When will the population of Tripli be twice the population of Doublin? Round your answer to the nearest year.