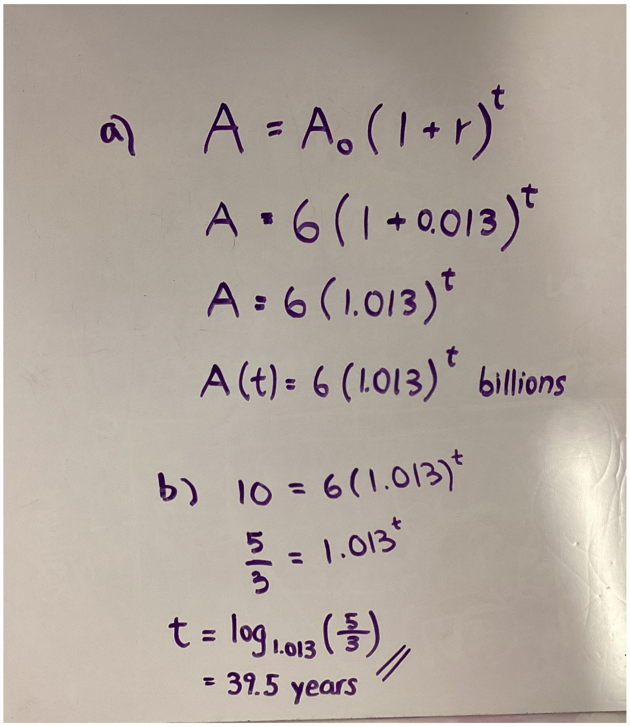
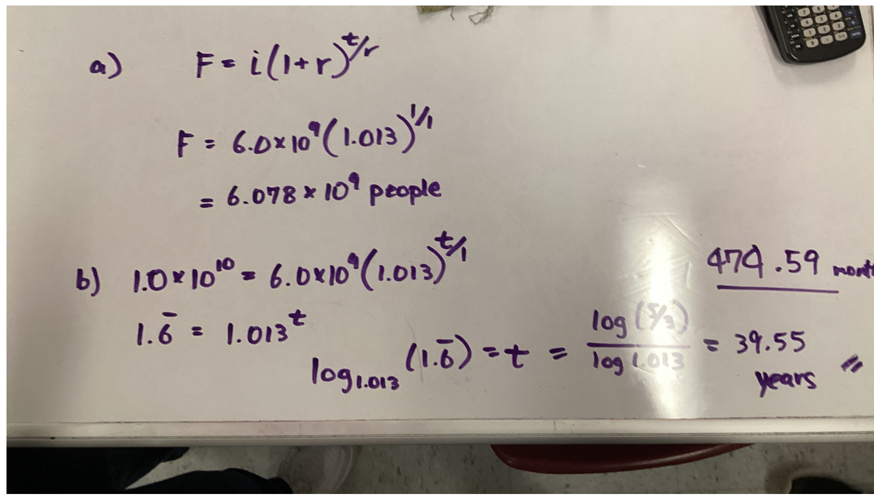
19. The world population was approximately 6 billion in 2000. Assume that the population grows at a rate of 1.3% per year.

a) Write an equation to represent the population of the world.

b) When will the population reach at least 10 billion?





11. According to a Statistics Canada report released in 2010, Saskatoon had the fastest-growing population in Canada, with an annual growth rate of 2.77%.

a) If the growth rate remained constant, by what factor would the population have been multiplied after 1 year?

b) What function could be used to model this situation?

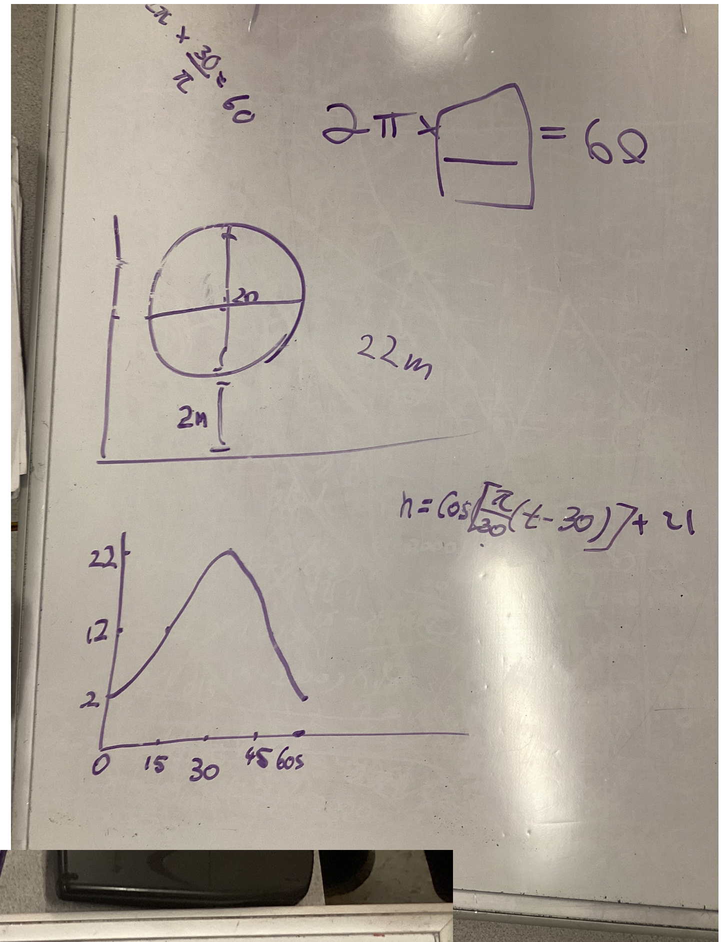
c) What are the domain and range of the function for this situation?

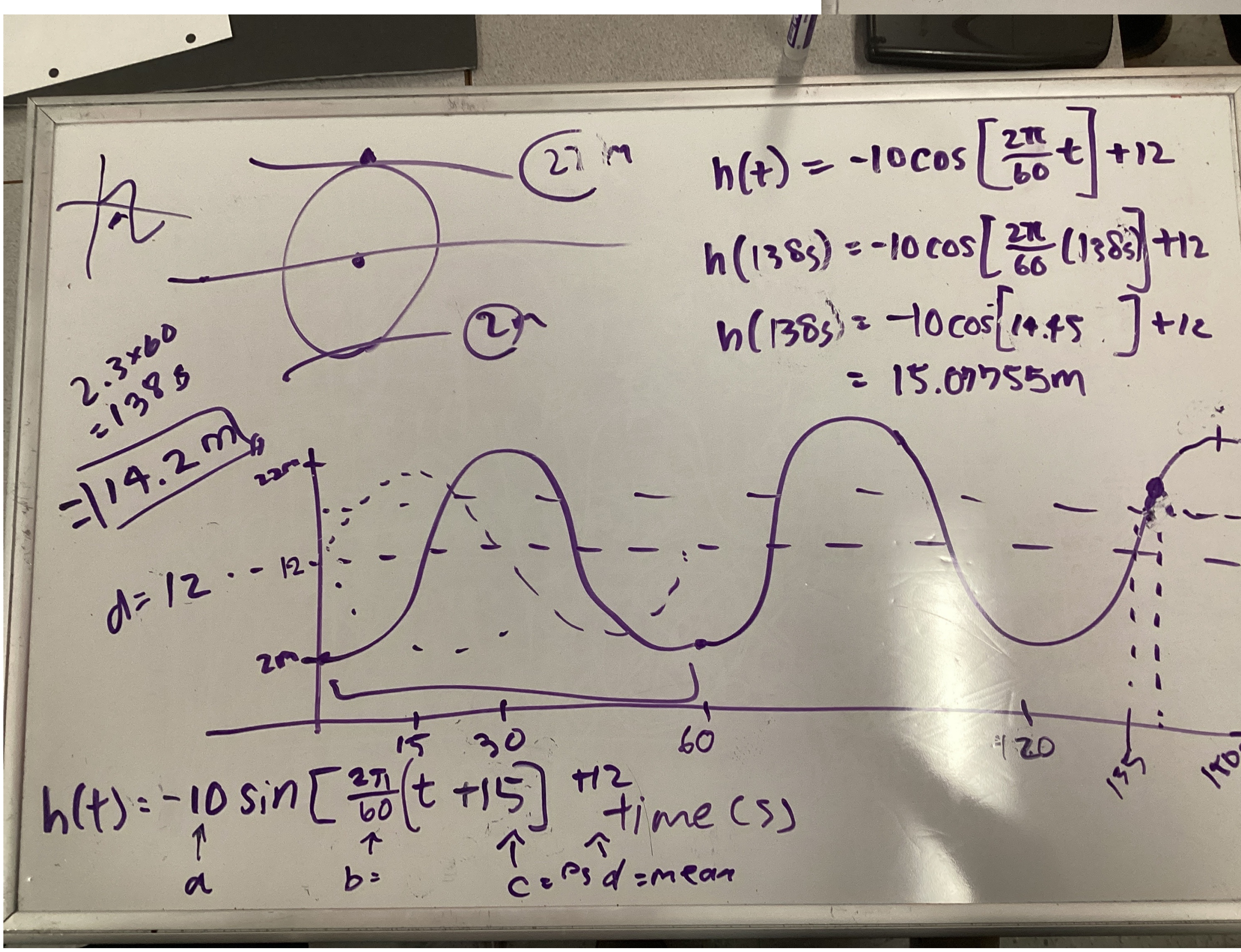
d) At this rate, approximately how long would it take for Saskatoon's population to grow by 25%?

19. A Ferris wheel with a radius of 10 m rotates once every 60 s. Passengers get on board at a point 2 m above the ground at the bottom of the Ferris wheel. A sketch for the first 150 s is shown.

a) Write an equation to model the path of a passenger on the Ferris wheel, where the height is a function of time.

b) If Emily is at the bottom of the Ferris wheel when it begins to move, determine her height above the ground, to the nearest tenth of a metre, when the wheel has been in motion for 2.3 min.





Quiz Next Day!