

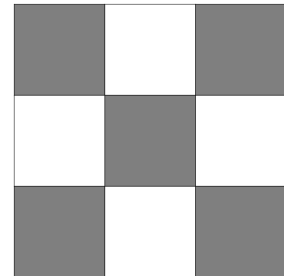
SELL! SELL! SELL!!

Developers convince a large land owner to subdivide a square section of land. He is worried about overpopulating and loss of habitat for wildlife. As a result of his concern for the land, he decides that he will only divide it into 9 parts. To keep the square integrity of the section he decides to divide into 9 squares. He also wants to leave the majority of the area undeveloped and insists on keeping 5 of the 9 squares for wildlife and parks. Five years later, the developed land is fully populated. The developers come back to the owner and ask for more property. He agrees to sell them his remaining 5 parcels but again insists that he retain control of $\frac{5}{9}$ of each parcel for wildlife and parks. Five more years go by and the population is again overflowing its boundaries. New developers approach the owner again and plead for more land. He agrees with the same stipulation with $\frac{5}{9}$ being retained for wildlife.



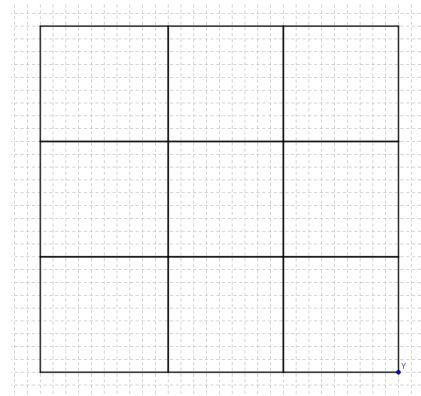
1. Sketch a square parcel of land divided into 9 squares.
2. Shade in five sections of the original subdivision that you believe would be the best for the farmer to leave as wildlife habitat.

The farmer makes an executive decision that the land should look like this, where the dark area is the preserved wildlife habitat.



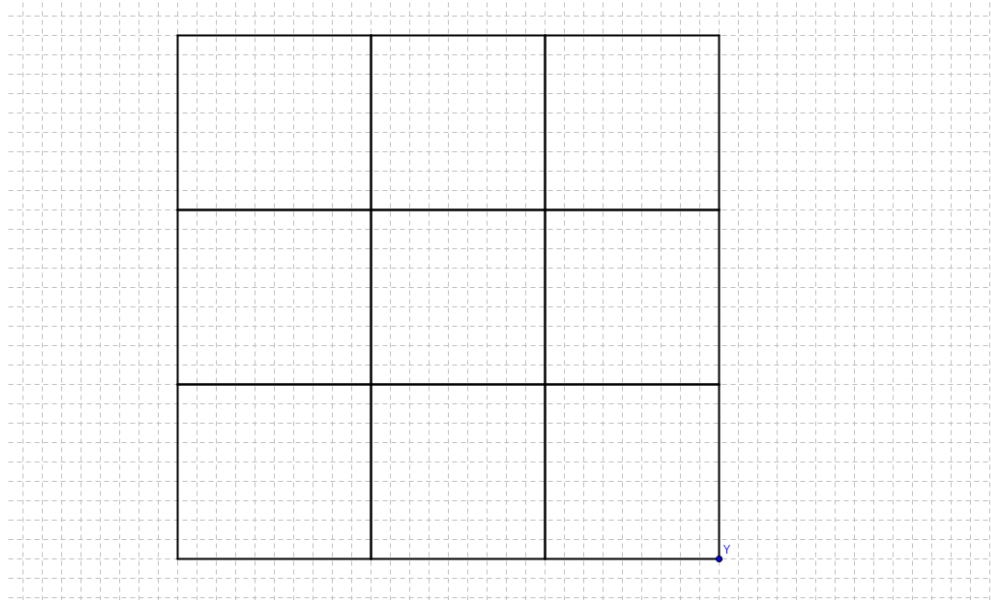
3. What fraction is wildlife habitat? What percent?
4. What fraction is development? What percent?
5. Remember, after the initial population boom, the farmer agreed to sell more of his property. If he keeps the initial restrictions and pattern, sketch what the property looks like after his second sale.

6. What fraction is wildlife habitat? What percent?
7. What fraction is development?
8. For the third sale the farmer continues his restrictions and pattern. Diagram the resulting area on the graph paper. Shade in the all the wildlife areas remaining. Provide a legend on your diagram giving the fractions of developed and undeveloped land as well as the



percent equivalent rounded to the nearest tenth of a percent.

9. On the graph below, shade in 5 percent of the land if the owner had insisted on keeping the habitat contiguous.



10. If the pattern of development in exercises 1-8 continues every 5 years, how many years from the original sale date will pass until there is less than 5 percent of the land left as wildlife habitat?