Math **Equations in Context** Heading:

1. Mr Sanchez gets a small group of volunteers to rebuild part of the **Iglesia de Nuestra Señora de la Limpia Concepción**, one of the oldest churches in Costa Rica. Before it was finally finished in 1580, stonemasons constructed the church out of blocks of limestone using the traditional technique of *calicanto*. Mr. Sanchez found 115 blocks of limestone that can be preserved and use for this National Monument. Every week, Mr. Sanchez and his volunteers can build 50 blocks onto this foundation. It is estimated that they will need about 12,000 blocks of limestone to finish this project.

A) Fill in the table.

Weeks (x)	0	1	2	3	4	5	6		x
Blocks of Limestone (y)									

B) How many blocks did Mr. Sanchez have when he started building (week 0)? Explain how you found this amount.

C) Write an equation for this scenario.

D) How many blocks will Mr. Sanchez and his volunteers have constructed in the church on week 20? Show your work.

E) At the end of what week will he have enough blocks of limestone to rebuild the church? Justify your answer (You may estimate in years).

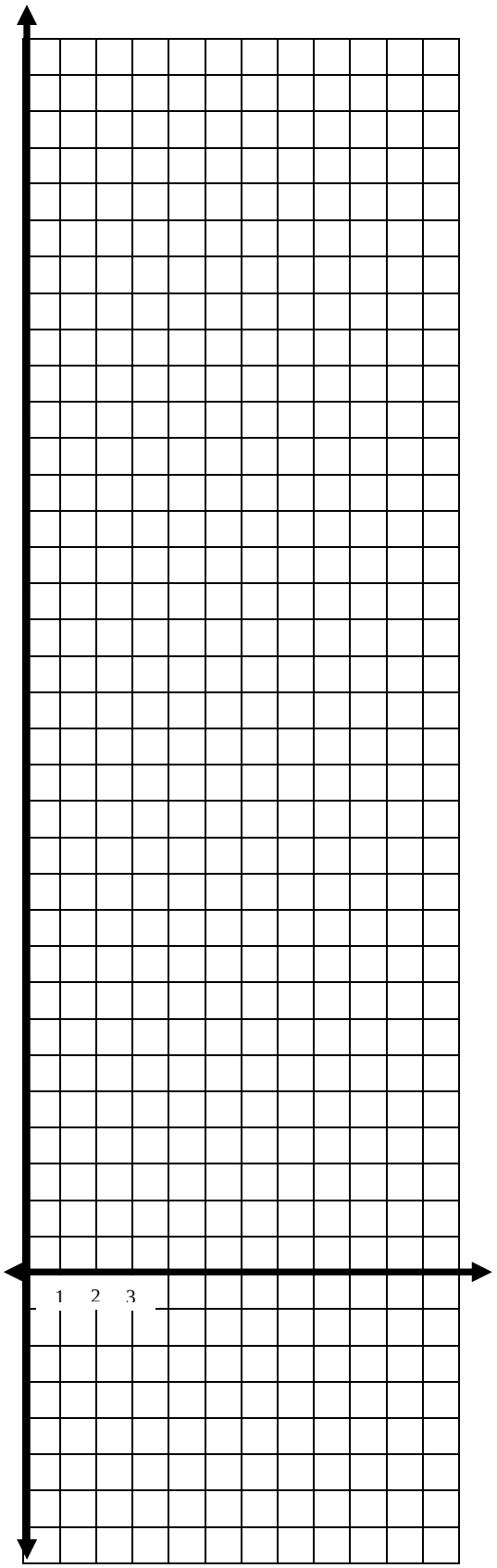
F) What is the growth **rate** for this problem? What does the unit rate mean in the context of this problem?

#2 The late 18th century and early 19th century saw floods, earthquakes, and health crises, so the villagers were forced to move away from **Iglesia de Nuestra Señora de la Limpia Concepción**, one of the oldest churches in Costa Rica. As the people vanished, the church fell into ruin. Every year, the church's blocks of limestone are destroyed roughly by 50 blocks. If the church has only 450 blocks left, what will it look like after another ten years?

A) Make a table for this scenario. You may need to **add more columns** in order to solve the problem.

Years (x)	0	1	2	3	4
Remaining Blocks (y)					

B) Graph the data on your table on the given graph.



C) Write an equation for this situation.

Equation: _____

D) How long has will this church remain with whole blocks of limestone? How do you know?

E) How can you use your **graph** to answer the question?

F) How can you use your **equation** to answer the question?

F) What is the growth rate for this problem and what does that mean? (Hint: is this increasing or decreasing?)