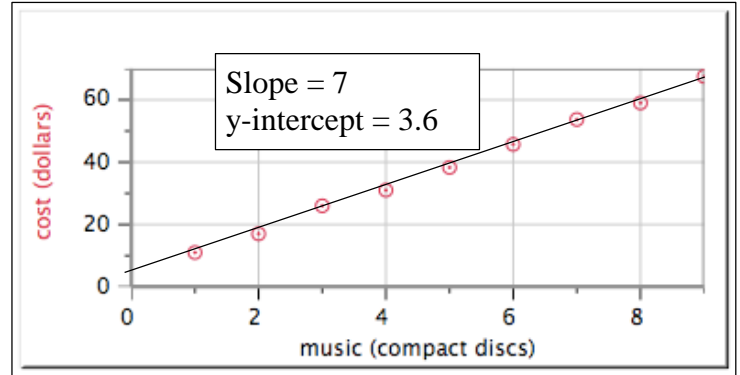# Unit 1 - Doing Science
Exercise 2 - Graphical Analysis

1. A friend prepares to place an online order for CD's.

   a. What are the **units** for the slope of this graph?

   Slope = 7
   y-intercept = 3.6

   cost (dollars) / music (compact discs)

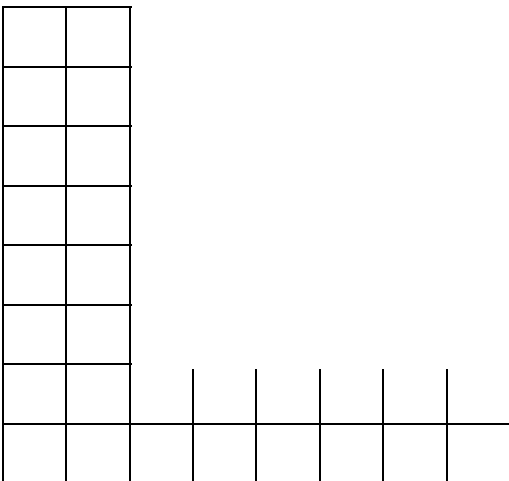   b. What does the slope of the graph tell you in this situation?

   c. Write an equation that describes the graph.

2. The following times were measured for spheres of different masses to be pushed a distance of 1.5 meters by a stream:

   a. Graph the data by hand on the grid provided **and** write an equation for the graph that describes the data.

Mass (kg)	Time (s)
5	10.2
10	17.3
15	23.8
20	31.0

b. Write a clear sentence that describes the relationship between mass and time.

3. A student performed an experiment with a metal ball. The student shot the ball from a slingshot and measured its maximum height. The ball was shot six times at six different angles above the horizon.

   a. What is the relationship being studied?

   b. What is the <u>independent</u> variable in this experiment?

   c. What is the <u>dependent</u> variable in this experiment?

   d. What variables must be held <u>constant</u> throughout this experiment?
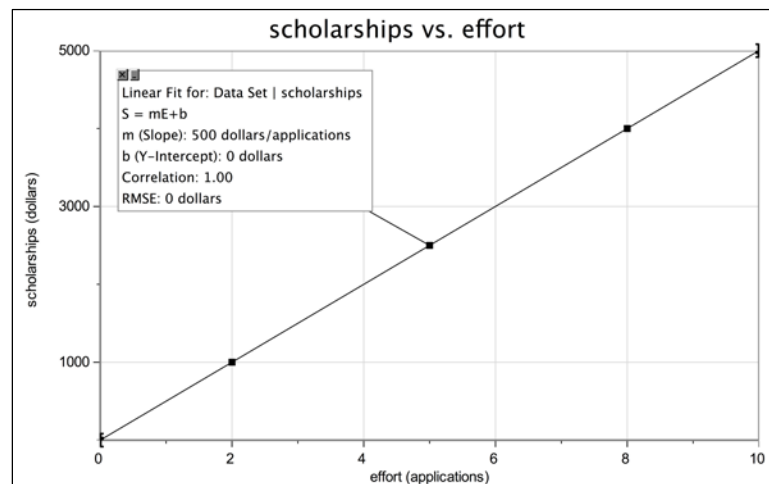
4. Consider the graph above.

   a. Write an equation that describes the relationship.

   b. Using the equation, predict how many applications would be needed to earn $8000.

5. Data below were taken for several buildings in a prominent city. Using the data, create a graph and sketch the best-fit line.
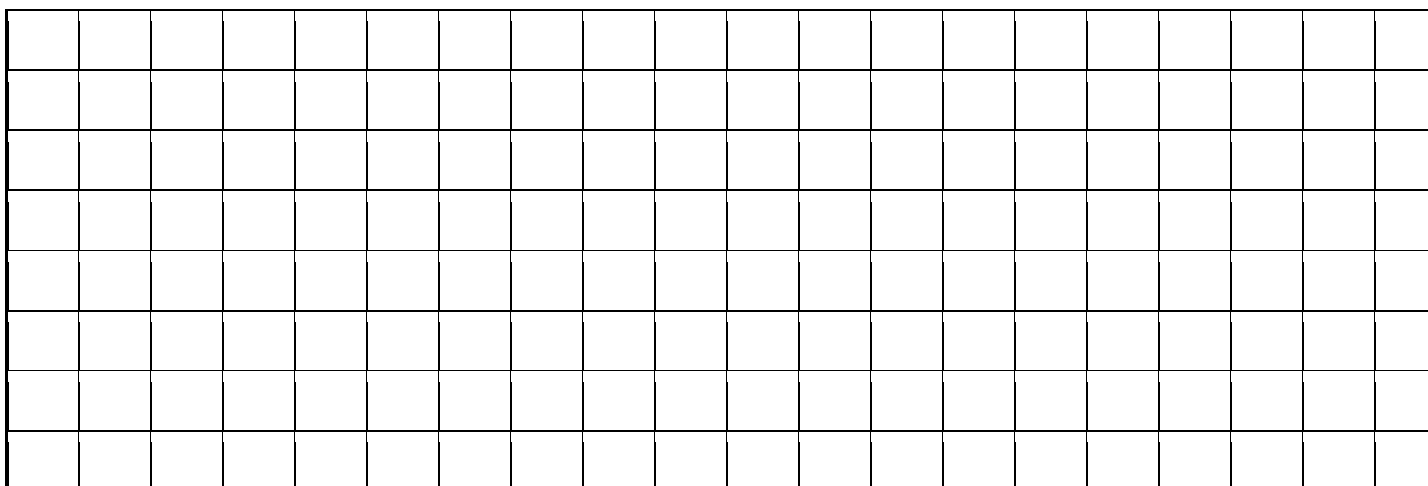
Number of Stories	Height of Building (m)
7	21
12	35
5	16
3	10
9	26
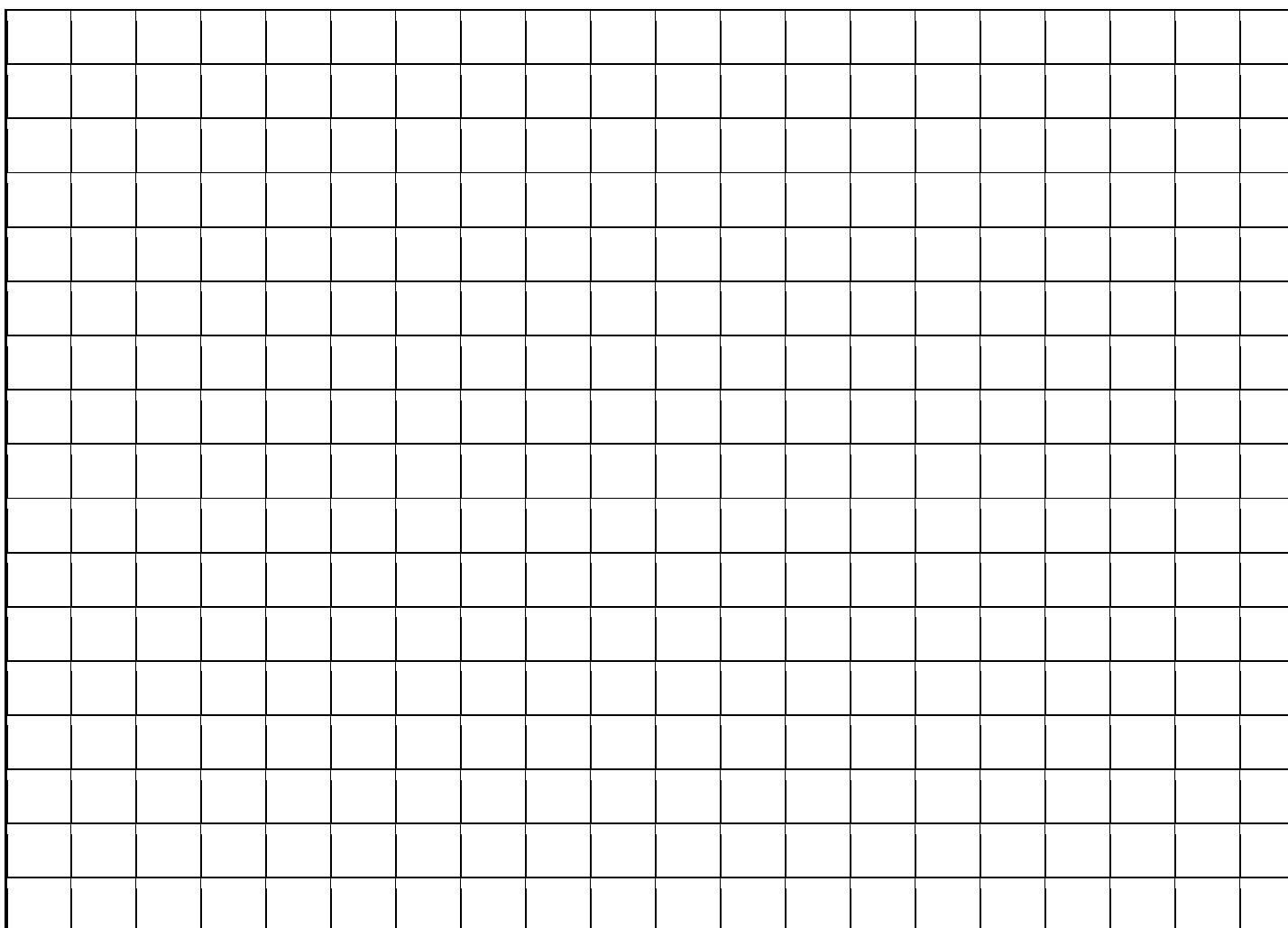
Using your graph and best-fit line, how many stories would you predict a 30m tall building to have?

6. The data points below were taken for the number of students taking science at various schools and the number of science classes taught at those schools. Using the data, create a graph and sketch the best-fit line.

# of Classes	# of Students
4	126
1	35
8	265
5	166
9	290

Using your graph and best-fit line, how many students would you expect to be taking science at a school where there are 7 science classes being taught?