

Unit 1 – Block 2

Scenario:

After college, you built your own widget making factory. You have collected cost data over the years and know that the average cost for each widget you make depends on the amount of widgets you make at one time. The data is listed in the table to the right.

Number of widgets made	Average cost to make each widget
100	\$1.45
300	\$0.65
500	\$0.25
700	\$0.25
850	\$0.51
1100	\$1.45

1. Sketch a graph and plot this data. Scale and label the axes.

2. If you were going to plot this cost data on a graph, which window would you use? Explain your reasoning.

WINDOW A

Xmin = 0
Xmax = 2000
Xscl = 100
Ymin = 0
Ymax = 1.6
Yscl = 0.2
Xres = 1

WINDOW B

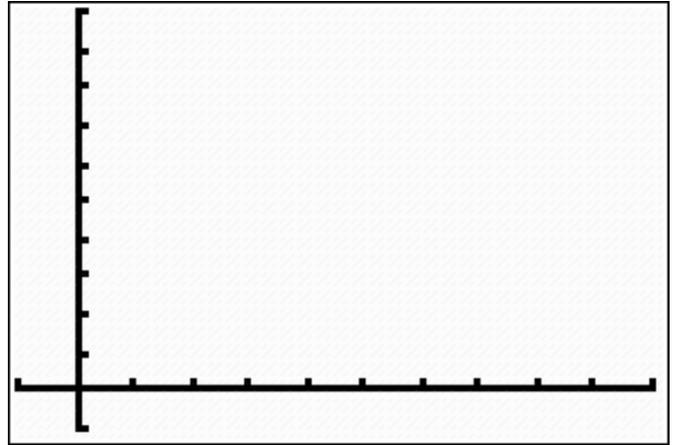
Xmin = 0
Xmax = 1500
Xscl = 100
Ymin = 0
Ymax = 2
Yscl = 0.2
Xres = 1

WINDOW C

Xmin = 0
Xmax = 1200
Xscl = 100
Ymin = 0
Ymax = 2.5
Yscl = 0.2
Xres = 1

3. Graph the cost data using the window shown. Use all of the tick marks and write down the missing Xscl and Yscl data in the table.

<p>WINDOW</p> <p>Xmin = 0</p> <p>Xmax = 1200</p> <p>Xscl =</p> <p>Ymin = 0</p> <p>Ymax = 1.5</p> <p>Yscl =</p> <p>Xres = 1</p>
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4. What does the graph above indicate about the behavior of the average cost of production as more widgets are produced?

5. A school's debate team is traveling to a competition. The van they are in has 30 gallons of gasoline in the gas tank. The van uses $\frac{1}{2}$ gallon of gas for every 10 miles it travels.

a. Complete the table to show the relationship between the amount of gas in the van's gas tank and the miles the van has driven.

Miles driven	Gallons of gas in the gas tank
0	
10	
20	
30	

b. How much gas will be in the gas tank in 60 miles? _____ In 85 miles? _____

c. In this scenario, list the two variables. _____ and _____.

d. Which variable do you believe is the independent variable? Why?

e. How many miles will this van travel until it runs out of gas?