

Choose a Model II

For Use With Lesson 8-1

FILES NEEDED: Transformation Graphing App
Program: A2L81A

In A2L81A, you will view three plots, one at a time. You are to select the appropriate family of functions and then use the Transformation Graphing App to find a family member that models the displayed data.

Function Families

Linear	Quadratic	Exponential
$y = mx + b$	$y = a(x - b)^2 + c$	$y = ab^x$
Y1 = AX + B	Y2 = A(X - B) ² + C	Y3 = AB ^X

```

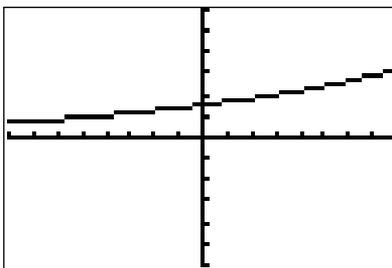
Plot1 Plot2 Plot3
MY1=AX+B
MY2=A(X-B)²+C
MY3=AB^X
MY4=■
MY5=
MY6=
MY7=
    
```

The numbers a , b , and c are called *parameters*. For each plot there is a “perfect” model. Choose Y1, Y2, or Y3 and be prepared to take parameter values to two decimal places to find the perfect model.

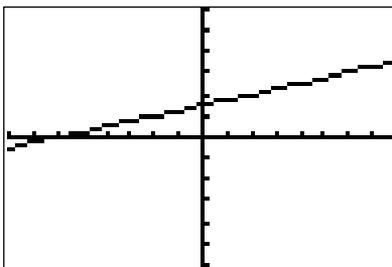
- Run A2L81A. In the Y= window, select the function you think will give the best model by highlighting its “=” sign. Then press **GRAPH**. Change the parameter values until you have the graph passing through the plotted points. Write the function for your graph.
- Switch from Plot1 to Plot2. Press **GRAPH** to see the second plot. Select a function. Change its parameter values to get the perfect model. Write the function for your graph.

```

Plot1 Plot2 Plot3
MY1=AX+B
MY2=A(X-B)²+C
MY3=AB^X
MY4=■
MY5=
MY6=
MY7=
    
```



- Switch from Plot2 to Plot3. Press **GRAPH** to see the third plot. Select a function. Change its parameter values to get the perfect model. Write the function for your graph.



Extension

- Suppose you had to make a “Choose a Model” challenge for a classmate. How would you construct the given plot?

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Activity Objective

Students make a visual choice of an appropriate model and then use the Transformation Graphing App to confirm their choice.

Correlation to Text

- Lesson 8-1: Exploring Exponential Models

Time

- 20–25 minutes

Materials/Software

- Transformation Graphing App
- Program: A2L81A
- Activity worksheet

Skills Needed

- change parameter values
- select and deselect a plot

Classroom Management

- Students can work individually or in pairs depending on the number of calculators available.

Notes

- Review with students how to deselect and select a plot in either the Y= or STAT PLOT screens.

Answers

1. $y = -2(x + 5)^2 + 3$
2. $y = 1.5(1.1)^x$
3. $y = 0.25x + 1.5$
4. Check students' work.