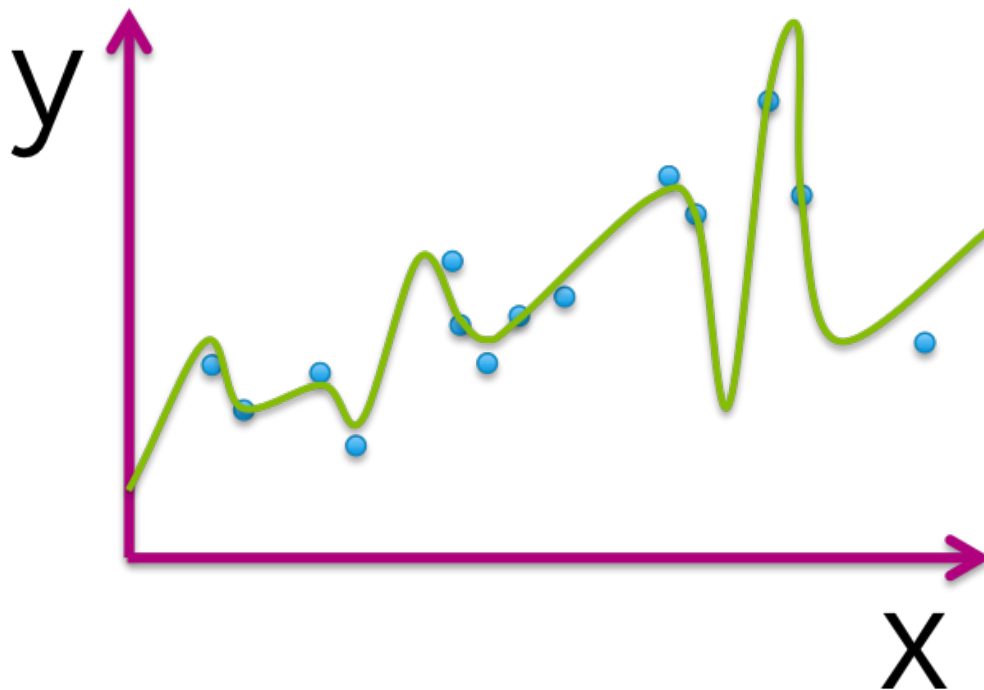
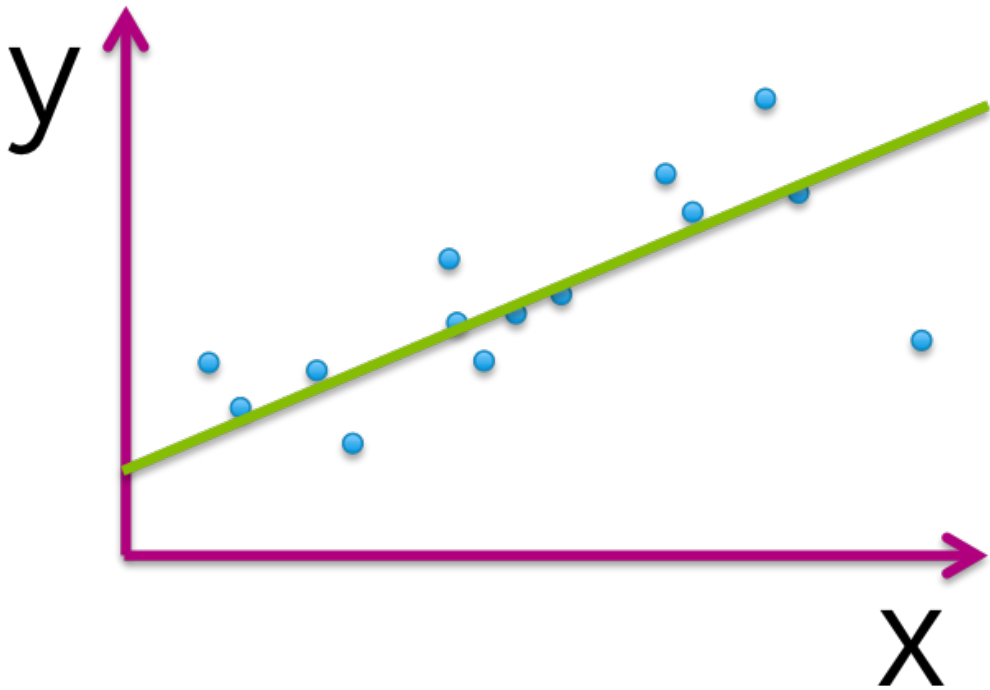
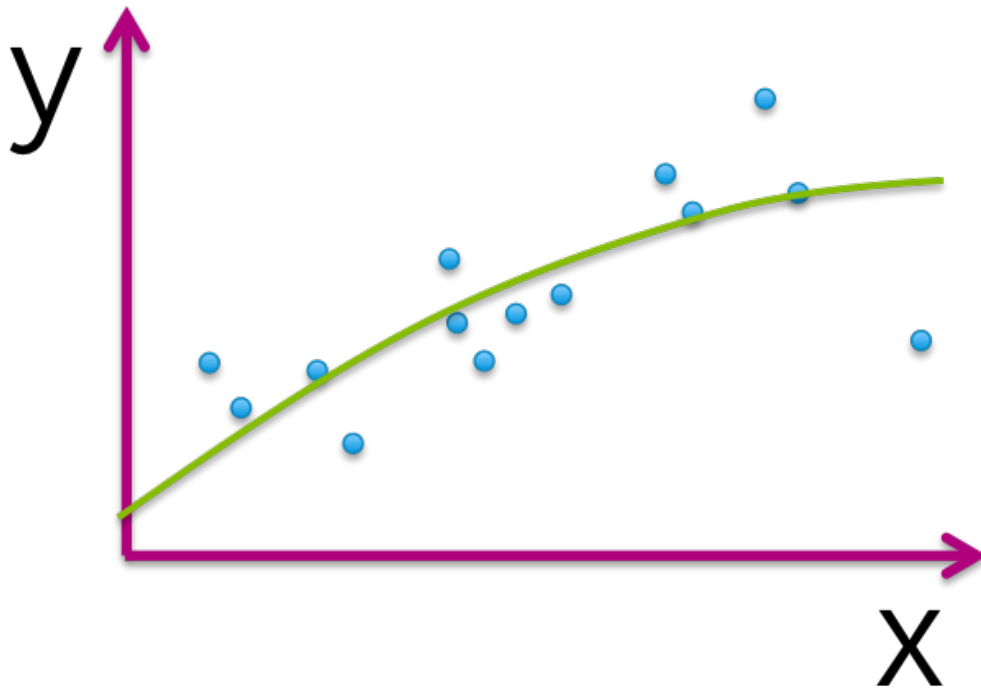


1. Which figure represents an overfitted model?

1 point







2. **True or false:** The model that best minimizes training error is the one that will perform best for the task of prediction on new data.

1 point

☐ True

☒ False

3. The following table illustrates the results of evaluating 4 models with different parameter choices on some data set. Which of the following models fits this data the best?

1 point

Model index	Parameters (intercept, slope)	Residual sum of squares (RSS)
1	(0,1.4)	20.51
2	(3.1,1.4)	15.23
3	(2.7, 1.9)	13.67

4	$(0, 2.3)$	18.99
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☐ Model 1

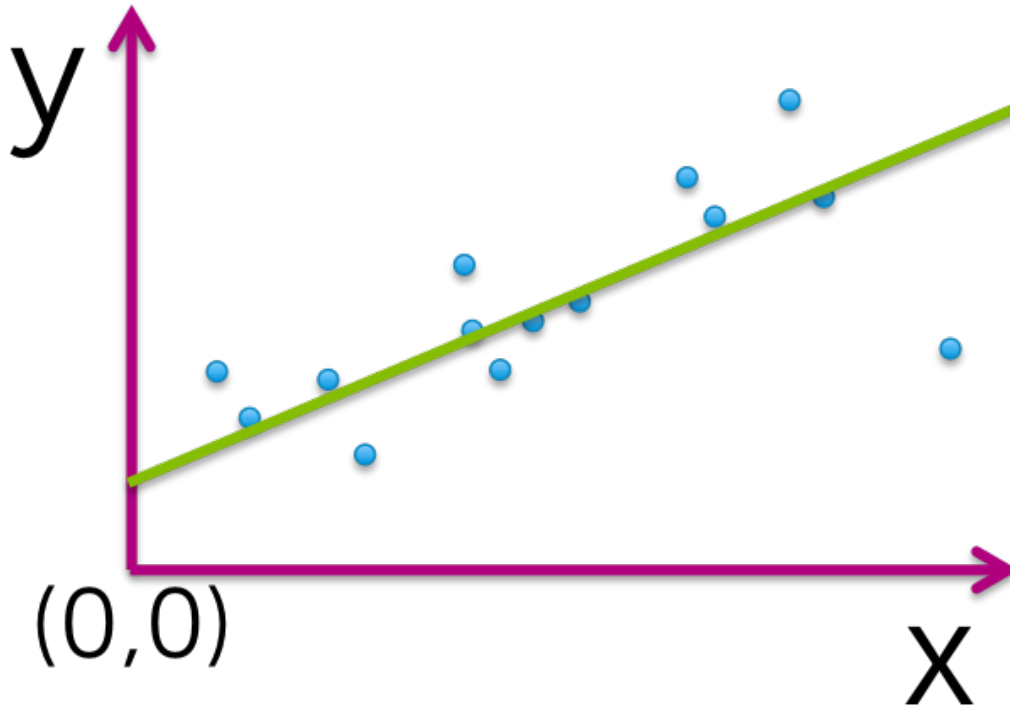
☐ Model 2

☒ Model 3

☐ Model 4

4. Assume we fit the following quadratic function:  $f(x) = w_0 + w_1x + w_2(x^2)$  to the dataset shown (blue circles). The fitted function is shown by the green curve in the picture below. Out of the 3 parameters of the fitted function ( $w_0$ ,  $w_1$ ,  $w_2$ ), which ones are estimated to be 0? (Note: you must select all parameters estimated as 0 to get the question correct.)

1 point

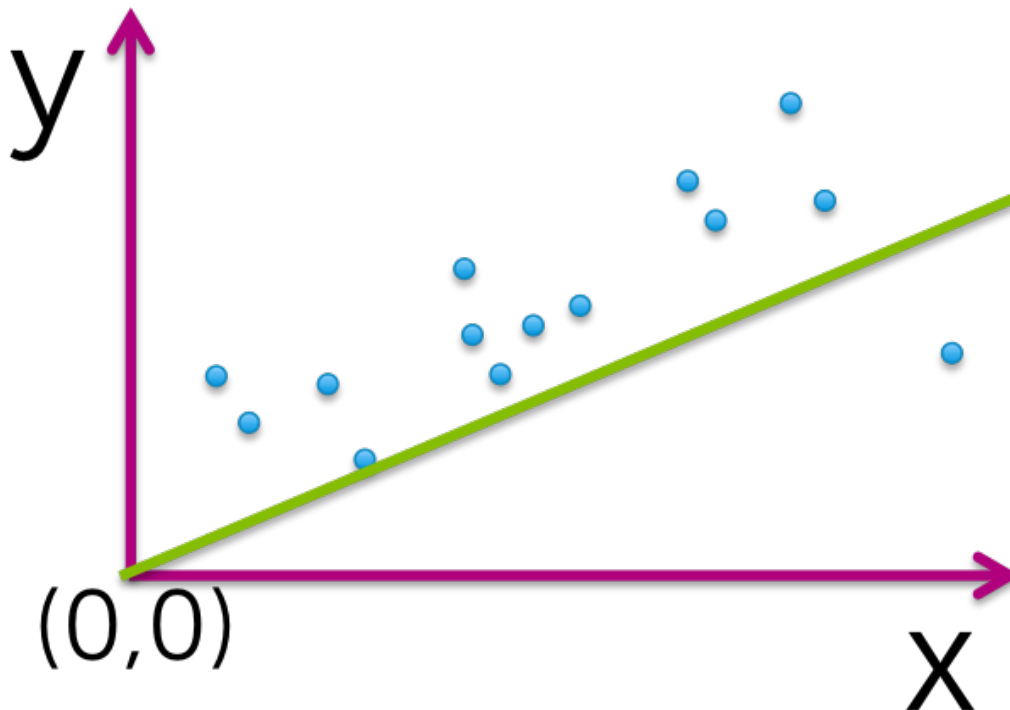


- ☐  $w_0$
- ☐  $w_1$
- ☒  $w_2$
- ☐ none of the above

5. Assume we fit the following quadratic function:  $f(x) = w_0 + w_1x + w_2(x^2)$  to the dataset shown (blue circles). The fitted function is shown by the green curve in the picture below. Out of the 3 parameters of the fitted function ( $w_0$ ,  $w_1$ ,  $w_2$ ), which

1 point

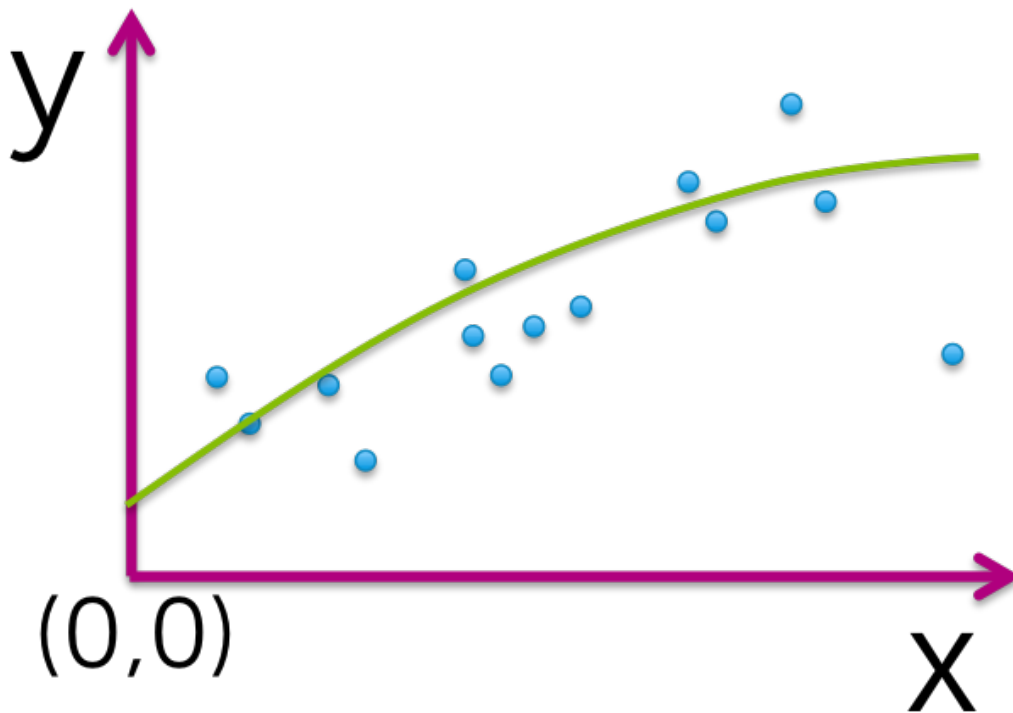
ones are estimated to be 0? (Note: you must select all parameters estimated as 0 to get the question correct.)



- ☒  $w_0$
- ☐  $w_1$
- ☒  $w_2$
- ☐ none of the above

6. Assume we fit the following quadratic function:  $f(x) = w_0 + w_1x + w_2x^2$  to the dataset shown (blue circles). The fitted function is shown by the green curve in the picture below. Out of the 3 parameters of the fitted function ( $w_0, w_1, w_2$ ), which ones are estimated to be 0? (Note: you must select all parameters estimated as 0 to get the question correct.)

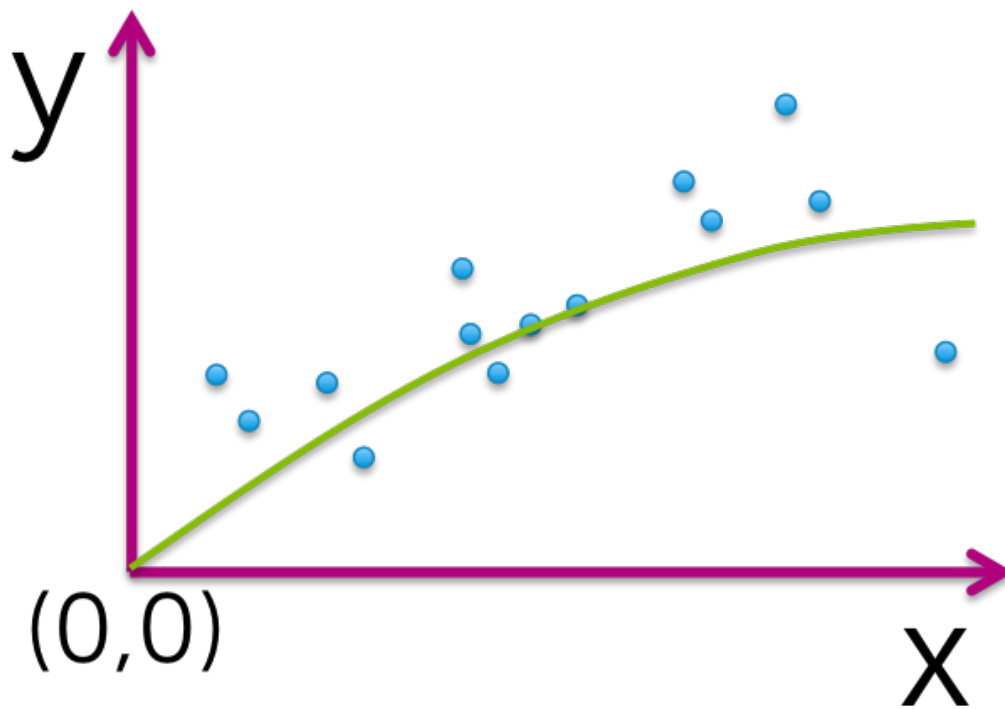
1 point



- ☐  $w_0$
- ☐  $w_1$
- ☐  $w_2$
- ☒ none of the above

7. Assume we fit the following quadratic function:  $f(x) = w_0 + w_1x + w_2x^2$  to the dataset shown (blue circles). The fitted function is shown by the green curve in the picture below. Out of the 3 parameters of the fitted function ( $w_0, w_1, w_2$ ), which ones are estimated to be 0? (Note: you must select all parameters estimated as 0 to get the question correct.)

1 point

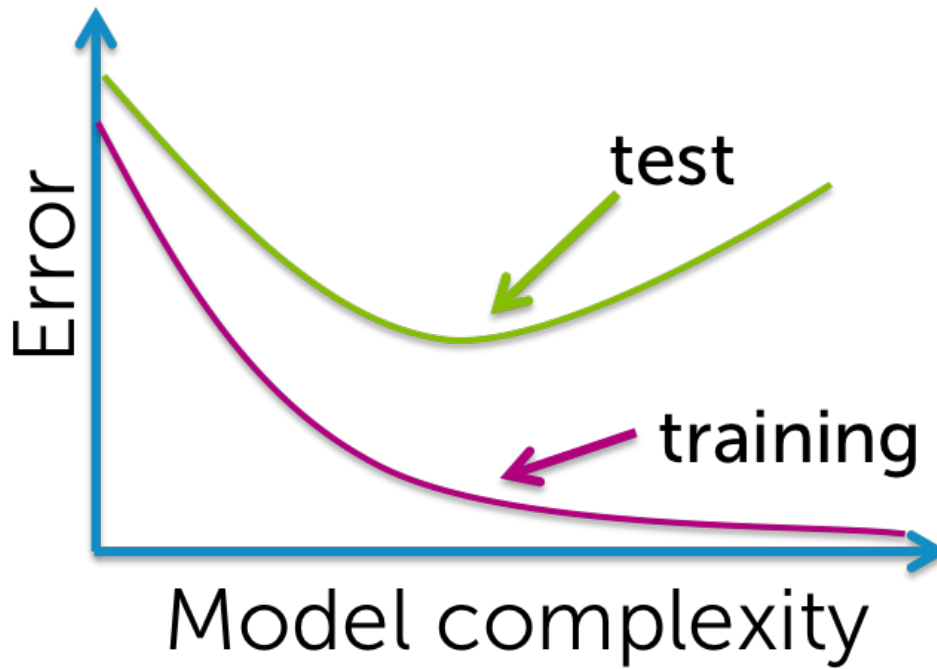


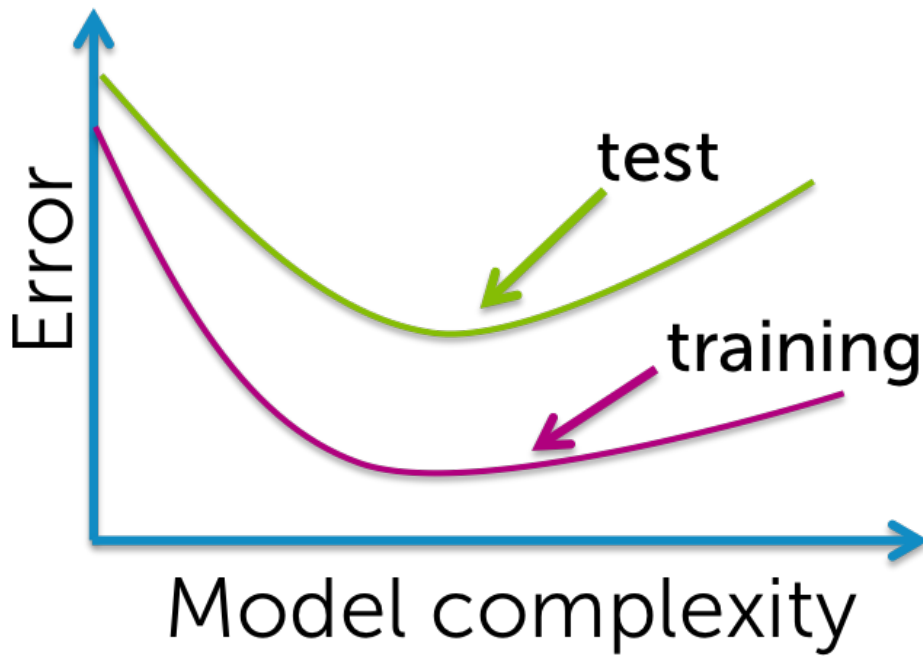
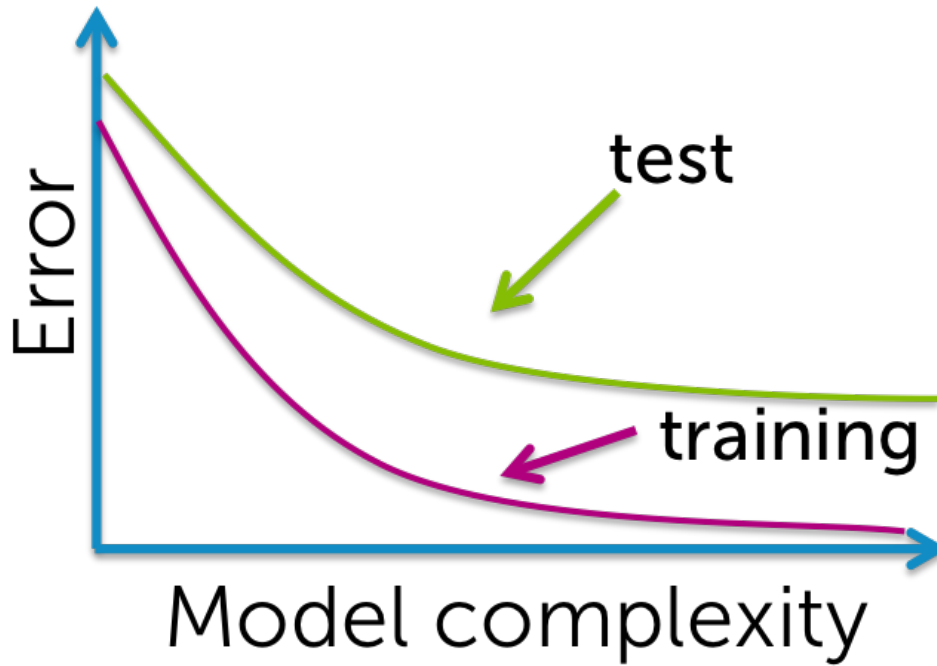
- ☒  $w_0$
- ☐  $w_1$
- ☐  $w_2$
- ☐ none of the above



8. Which of the following plots would you *not* expect to see as a plot of training and test error curves?

1 point





9. **True or false:** One always prefers to use a model with more features since it better captures the true underlying process.

1 point

☐ True

☒ False

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