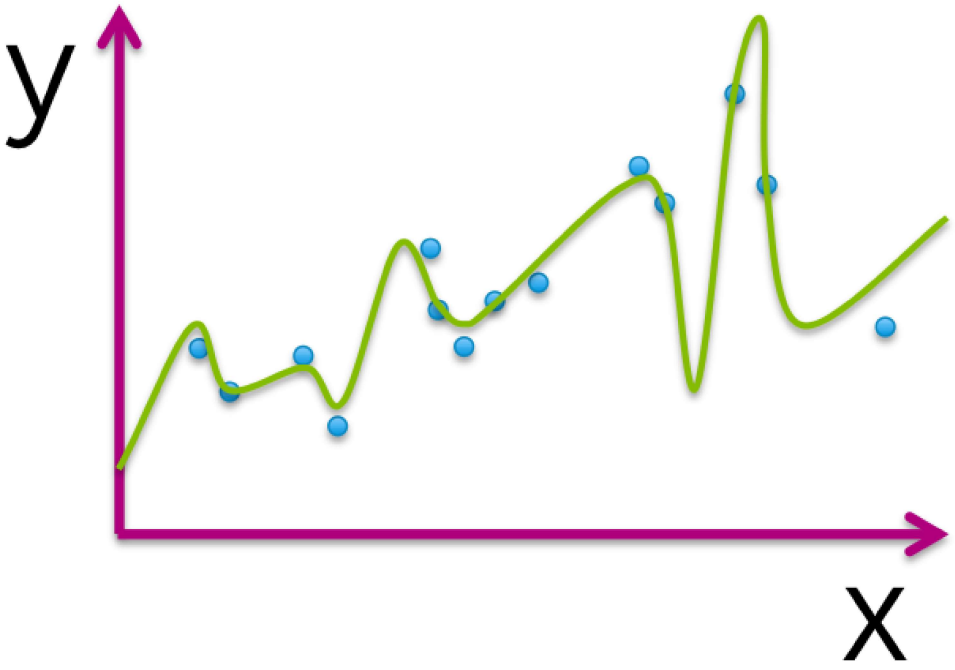
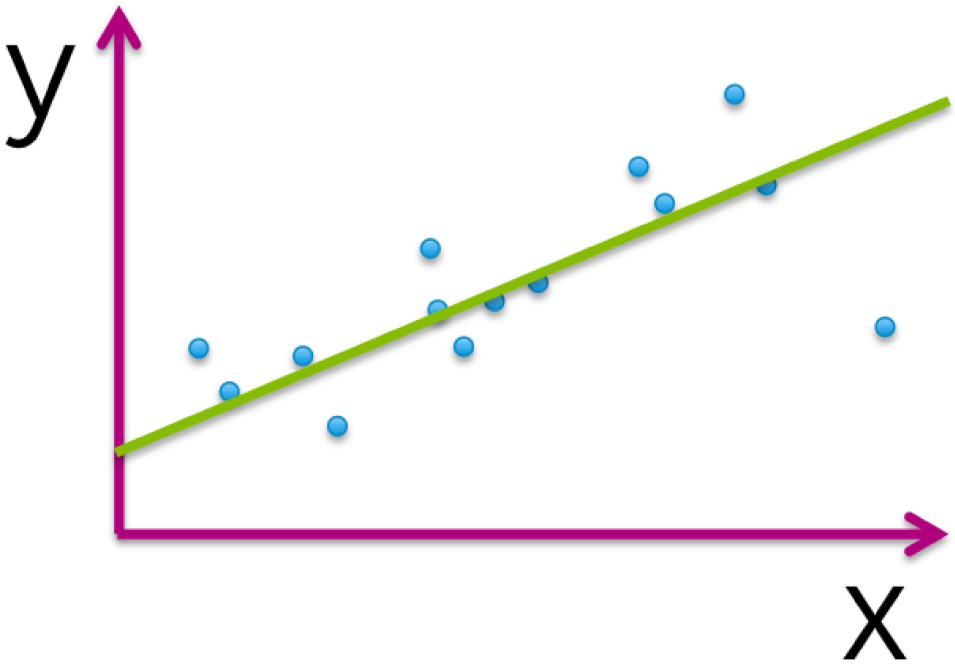
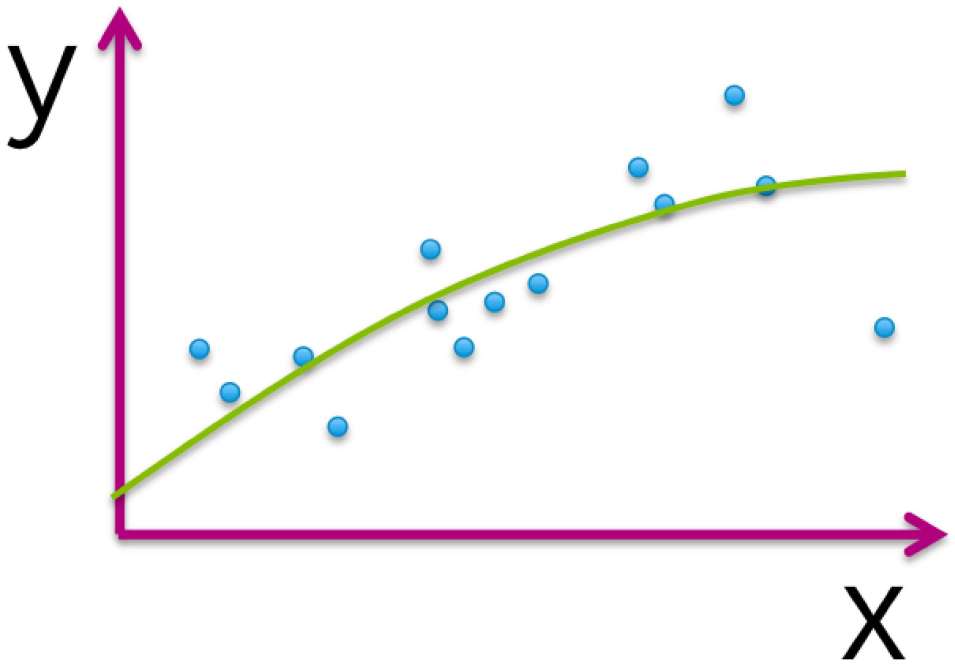
1. Which figure represents an overfitted model? 1 point







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

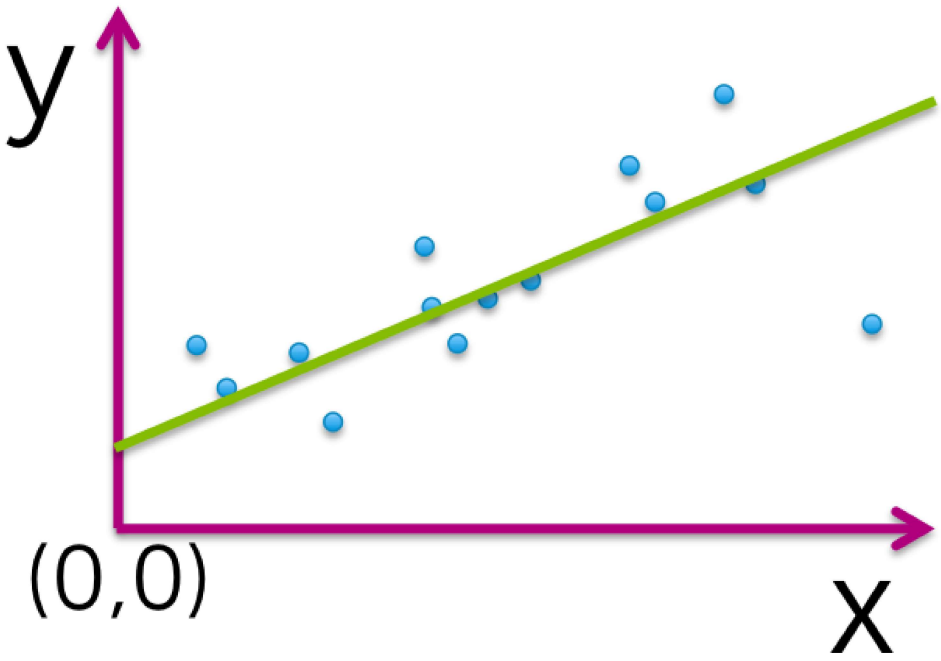
- True
- False

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

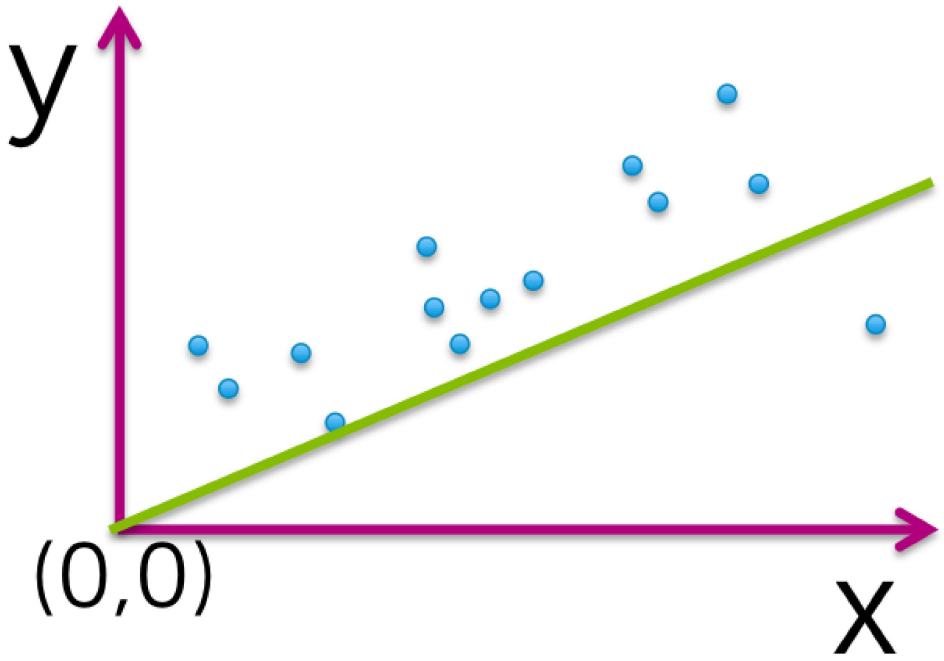
- Model 1
- Model 2
- Model 3
- Model 4

4. Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(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 (w0, w1, w2), which ones are estimated to be 0? *(Note: you must select all parameters estimated as 0 to get the question correct.)* 1 point



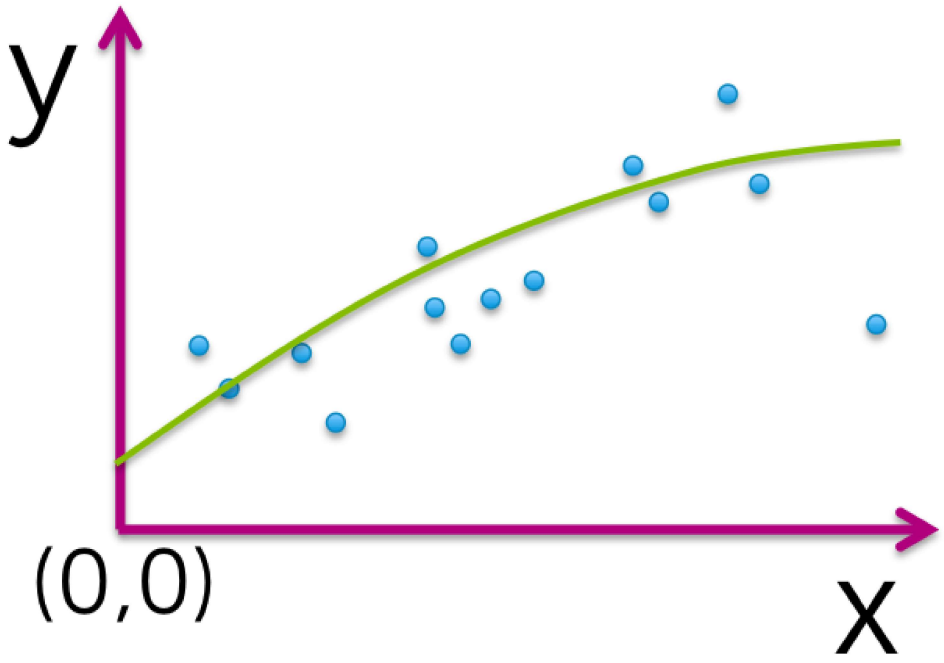
- [ ] w0
- [ ] w1
- [x] w2
- [ ] none of the above

5. Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(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 (w0, w1, w2), which ones are estimated to be 0? *(Note: you must select all parameters estimated as 0 to get the question correct.)* 1 point



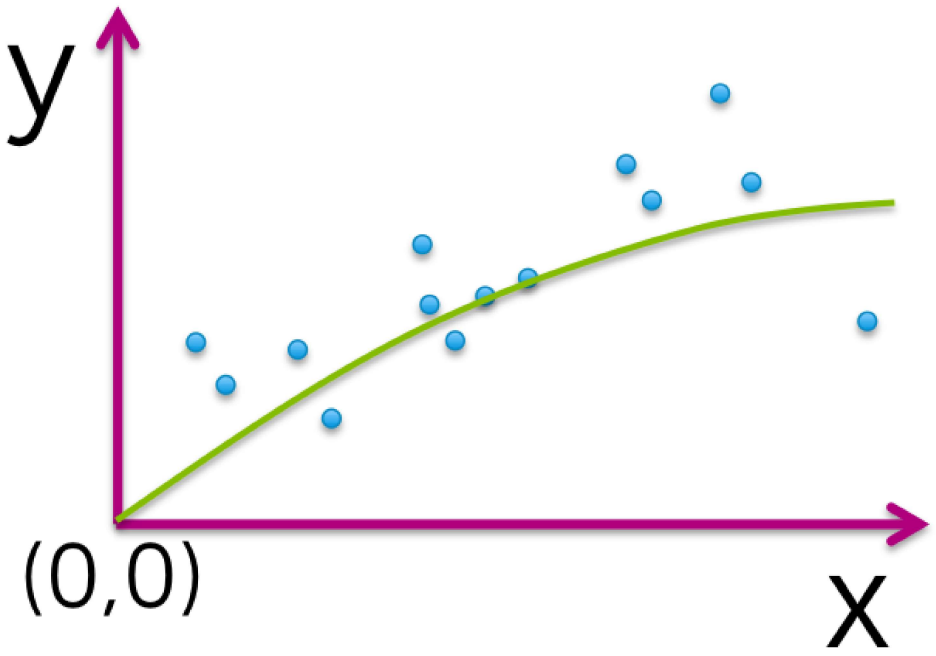
- [x] w0
- [ ] w1
- [x] w2
- [ ] none of the above

6. Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(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 (w0, w1, w2), which ones are estimated to be 0? *(Note: you must select all parameters estimated as 0 to get the question correct.)* 1 point



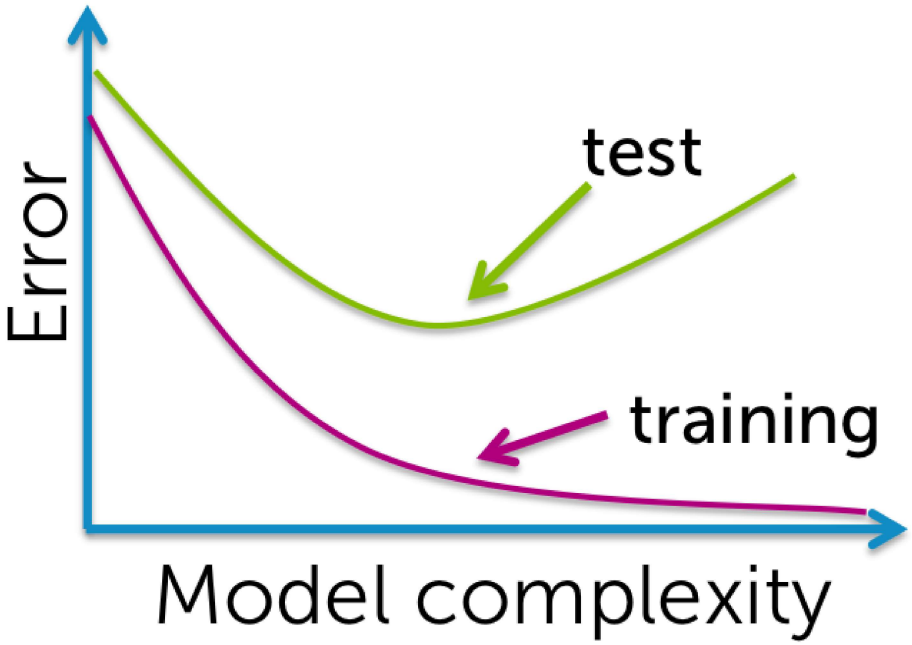
- [ ] w0
- [ ] w1
- [ ] w2
- [x] none of the above

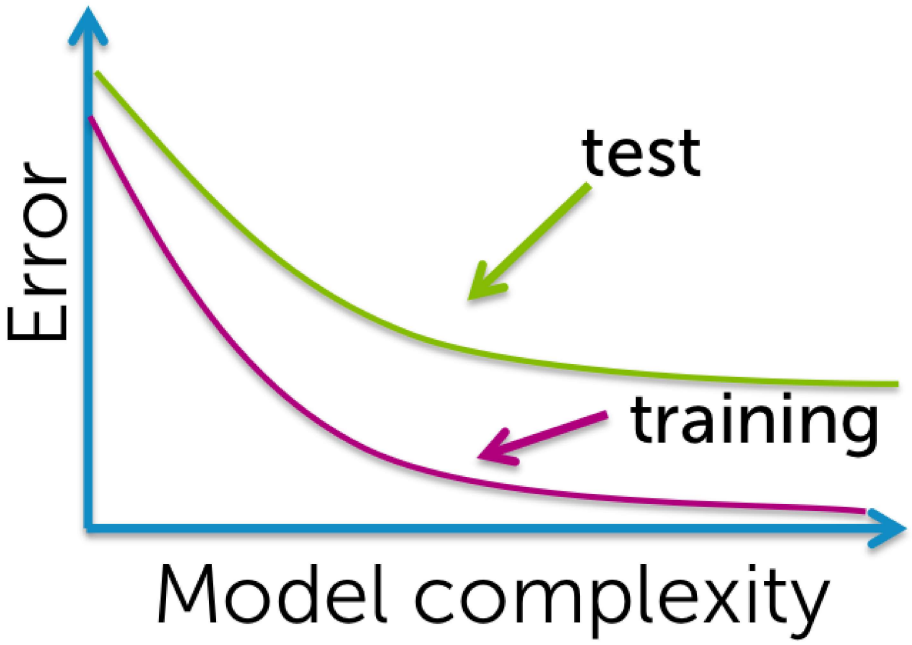
7. Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(x^2) to the dataset shown (blue circles). The fitted function is shown by the green curve in the picture below. Out of the 3 parameters of the fitted function (w0, w1, w2), which ones are estimated to be 0? *(Note: you must select all parameters estimated as 0 to get the question correct.)* 1 point

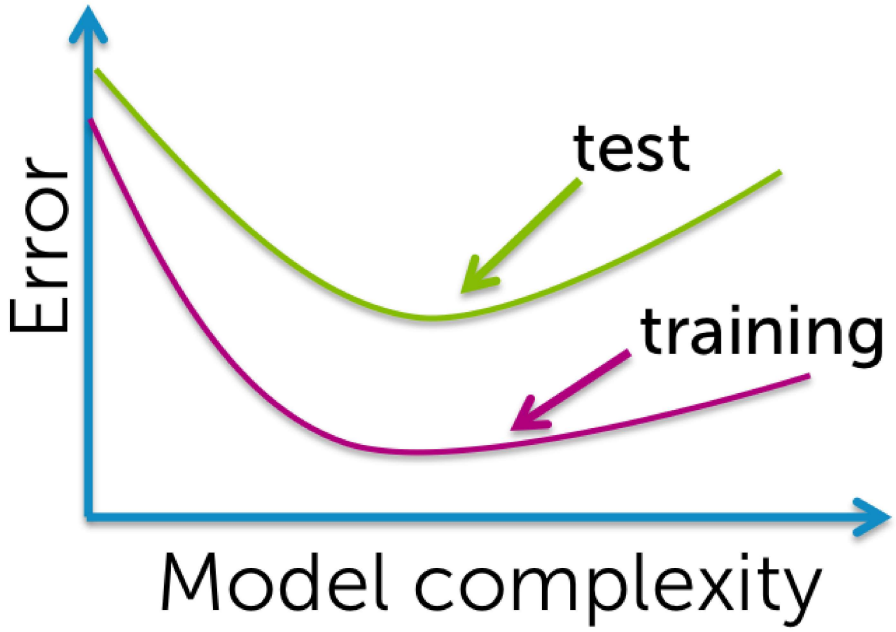


- [x] w0
- [ ] w1
- [ ] w2
- [ ] none of the above

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