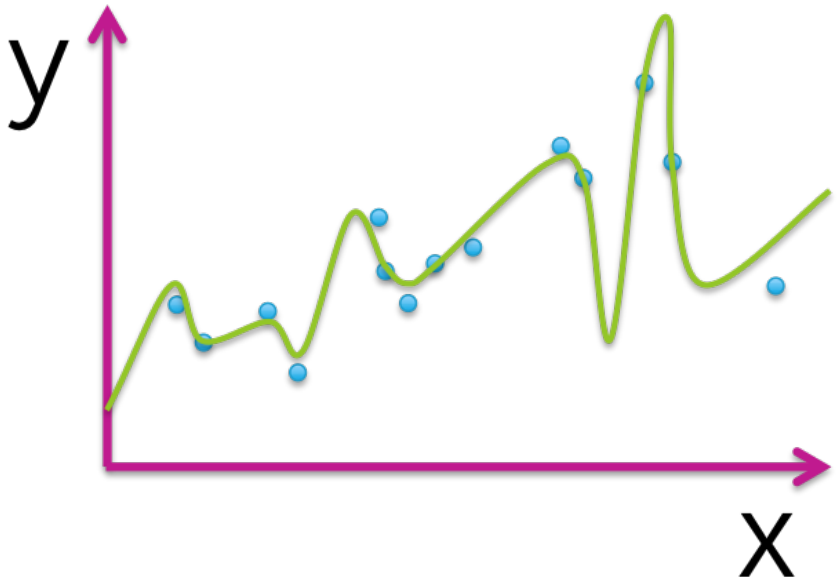
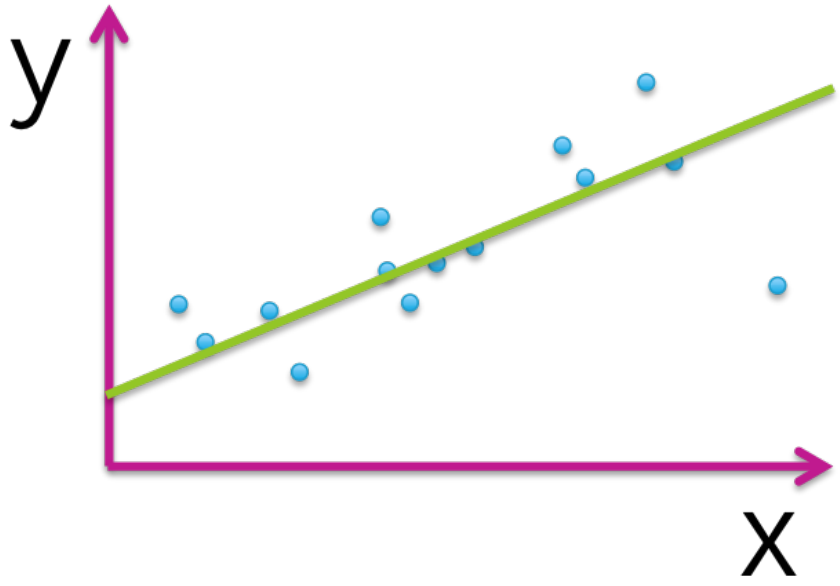
Regression

9 questions

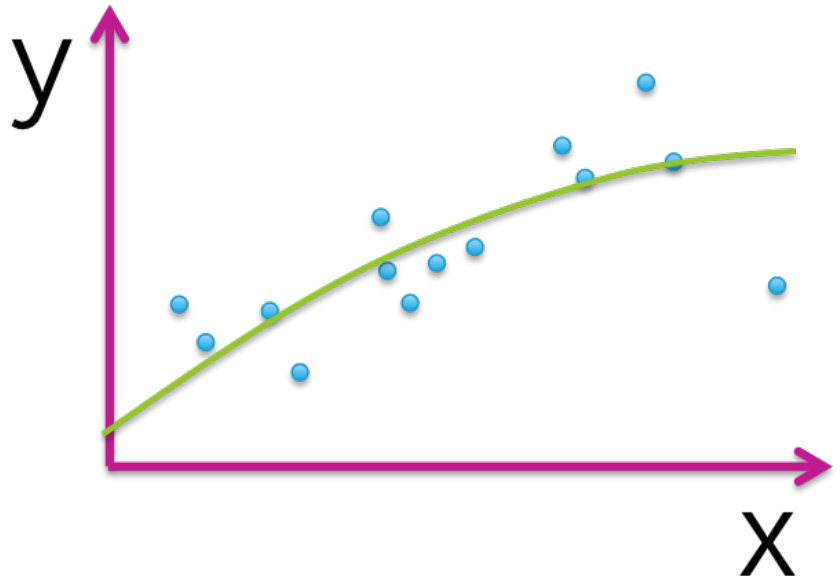
1.

Which figure represents an overfitted model?





o



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.

- [x] **True**
- [ ] **False**

3.

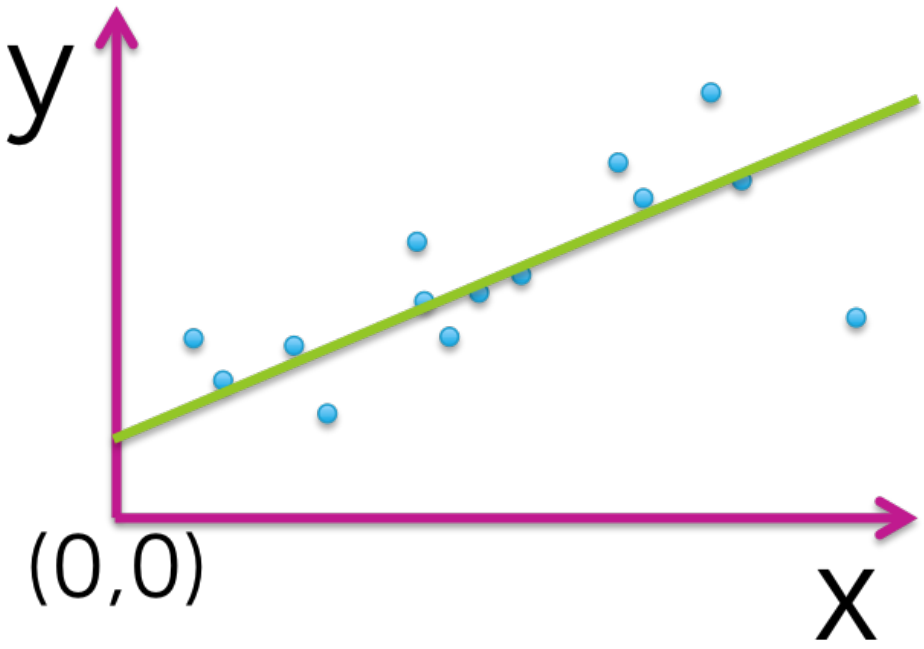
The following table illustrates the results of evaluating 4 models with different parameter choices on some data set. Which of the following models fits this data the best?

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

- [x] **Model 1**
- [x] **Model 2**
- [ ] **Model 3**
- [x] **Model 4**

4.

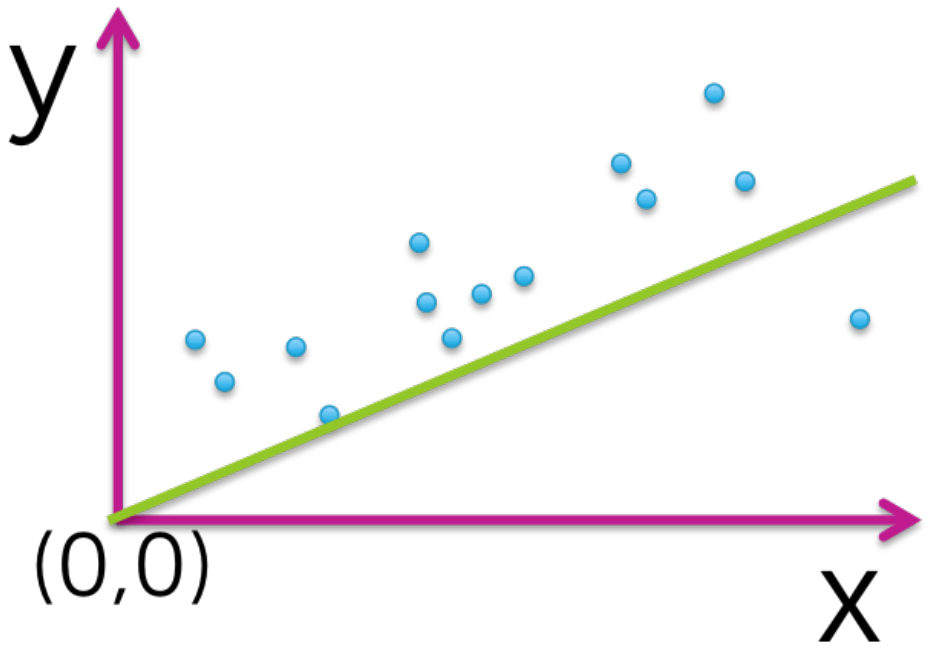
Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(x^2). Based on the following picture, which estimated coefficients do we know are exactly 0? (*Part 1*)



- ☐ w0
- ☐ w1
- ☐ w2
- ☐ none of the above

5.

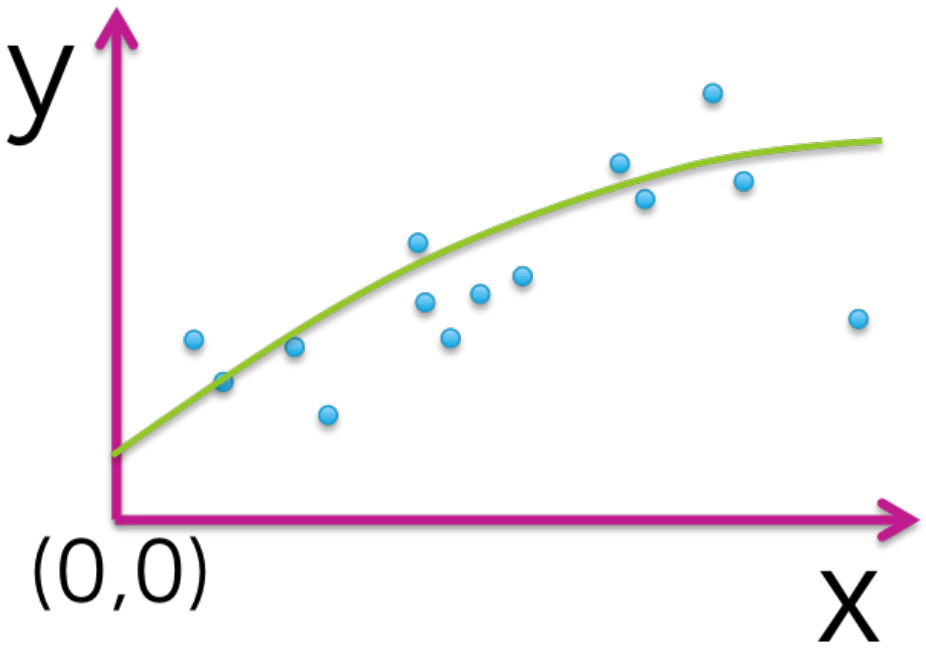
Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(x^2). Based on the following picture, which estimated coefficients do we know are exactly 0? (*Part 2*)



- ☐ w0
- ☐ w1
- ☐ w2
- ☐ none of the above

6.

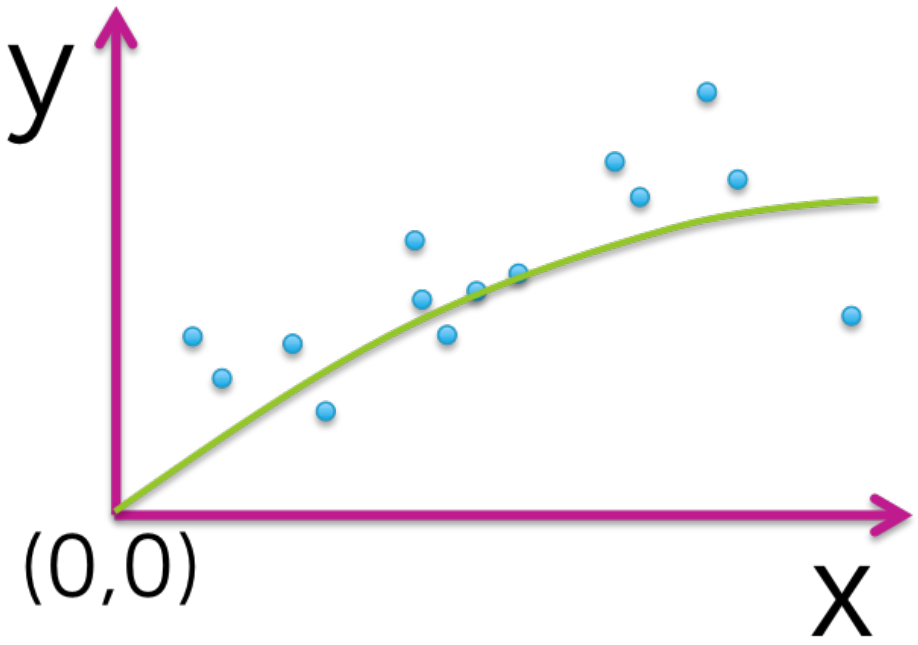
Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(x^2). Based on the following picture, which estimated coefficients do we know are exactly 0? (*Part 3*)



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

7.

Assume we fit the following quadratic function: f(x) = w0+w1*x+w2*(x^2). Based on the following picture, which estimated coefficients do we know are exactly 0? (*Part 4*)



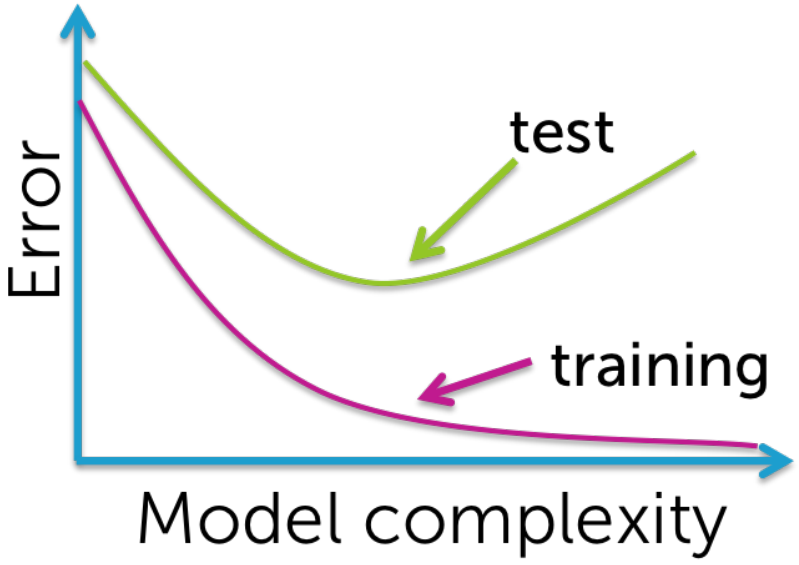
- ☐ w0
- ☐ w1
- ☐ w2
- ☐ none of the above

8.

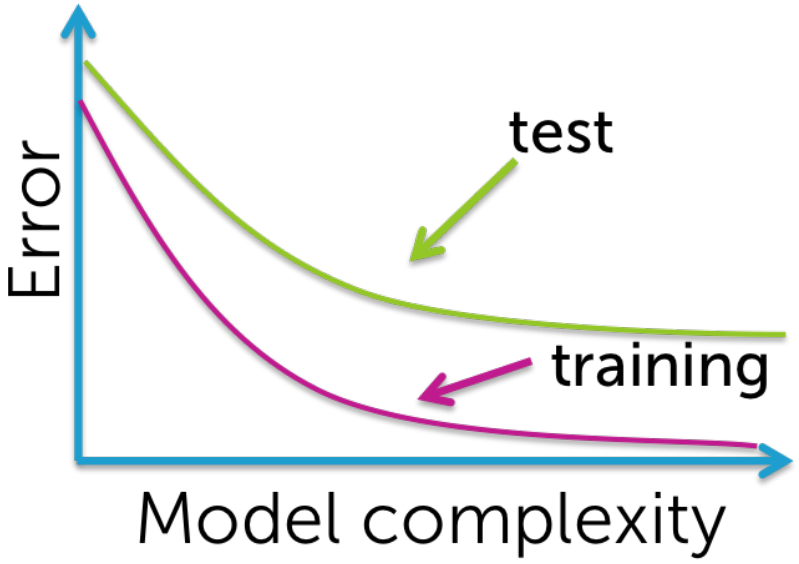
Which of the following plots would you ***not*** expect to see as a plot of training and test error curves?

○

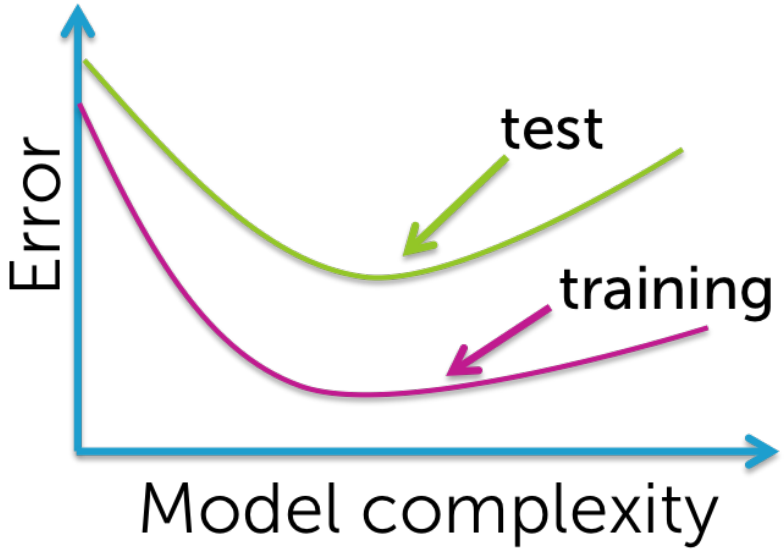
Help Center


Error
test
training
Model complexity

○


Error
test
training
Model complexity

○



9.

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

- True
- False

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