6.3 Review Questions

6.3.R1

1/1 point (graded)

You are trying to fit a model and are given p=30 predictor variables to choose from. Ultimately, you want your model to be interpretable, so you decide to use Best Subset Selection.

How many different models will you end up considering?:

2^30

✔ **Answer:** 2^30

2^{30}

Explanation

Each predictor can either be included or not included in the model. That means that for each of the 30 variables there are two options. Thus, there are 2^30 potential models.

Note: Don't ever try to fit that many models! It is too many and that is why Best Subset Selection is rarely used in practice for say p=10 or larger.

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ℹ Answers are displayed within the problem

6.3.R2

1/1 point (graded)

How many would you fit using Forward Selection?:

1+30*(30+1)/2

✔ **Answer:** 1+30*(30+1)/2

$$1 + \frac{30 \cdot (30+1)}{2}$$

Explanation

For Forward Selection, you fit (p-k) models for each k=0,...p-1. The expression for the total number of models fit is on pg 15 of the notes: p(p+1)/2+1.

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Answers are displayed within the problem