

Exer 5.3

[s2009/s2009-25]

For some simple models, the coefficients can be interpreted as grand means, group-wise means, or differences between group-wise means. In each of the following, A, B, and C are quantitative variables and color is a categorical variable with levels “red,” “blue,” and “green.”

1. The model $A \sim \text{color}$ gave these coefficients:

term	coefficient
Intercept	10
color Blue	5
color Green	12

- What is the mean of A for those cases that are Blue:
5 10 12 15 17 22 27 unknown [Exer 5.3-1](#)
- What is the mean of A for those cases that are Green:
5 10 12 15 17 22 27 unknown [Exer 5.3-2](#)
- What is the mean of A for those cases that are Red:
5 10 12 15 17 22 27 unknown [Exer 5.3-3](#)
- What is the grand mean of A for all cases:
5 10 12 15 17 22 27 unknown [Exer 5.3-4](#)

2. The model $B \sim \text{color} - 1$ gave these coefficients:

term	coefficient
color Red	100
color Blue	-40
color Green	35

- What is the group mean of B for those cases that are Blue:
-40 -5 0 35 60 65 100 135 unknown [Exer 5.3-5](#)
- What is the group mean of B for those cases that are Red:
-40 -5 0 35 60 65 100 135 unknown [Exer 5.3-6](#)
- What is the group mean of B for those cases that are Green:
-40 -5 0 35 60 65 100 135 unknown [Exer 5.3-7](#)
- What is the grand mean of B for all cases:
-40 -5 0 35 60 65 100 135 unknown [Exer 5.3-8](#)

3. The model $C \sim 1$ gave this coefficient:

term	coefficient
Intercept	4.7

- What is the group mean of C for those cases that are Blue:
0.0 4.7 unknown Exer 5.3-9
- What is the grand mean of C for all cases:
0.0 4.7 unknown Exer 5.3-10