

MATH 4939 Quiz 8 March 24, 2021

```

> dd <- as.data.frame(subset(Orthodont, Sex == 'Female'))
> head(dd,2)
  distance age Subject  Sex
65      21   8      F01 Female
66      20  10      F01 Female
> fit <- lme(distance ~ age, dd, random = ~ 1 + age | Subject,
+           correlation = corAR1(form = ~ 1| Subject))
> summary(fit)

```

Quiz 8

```

Random effects:
Formula: ~1 + age | Subject
Structure: General positive-definite, Log-Cholesky parametrization
          StdDev   Corr
(Intercept) 1.9370273 (Intr)
age          0.1681860 -0.397
Residual    0.6479416

```

1. Calculate the estimated G matrix.
2. Find the G matrix if age had been centered at 10, i.e. if you had used $\text{age2} = \text{age} - 10$ in the model instead of age.

