Worksheet 24 - R2

Wednesday, April 29, 2026

Math 58B - Jo Hardin

Name: _____

Names of people you worked with: _____

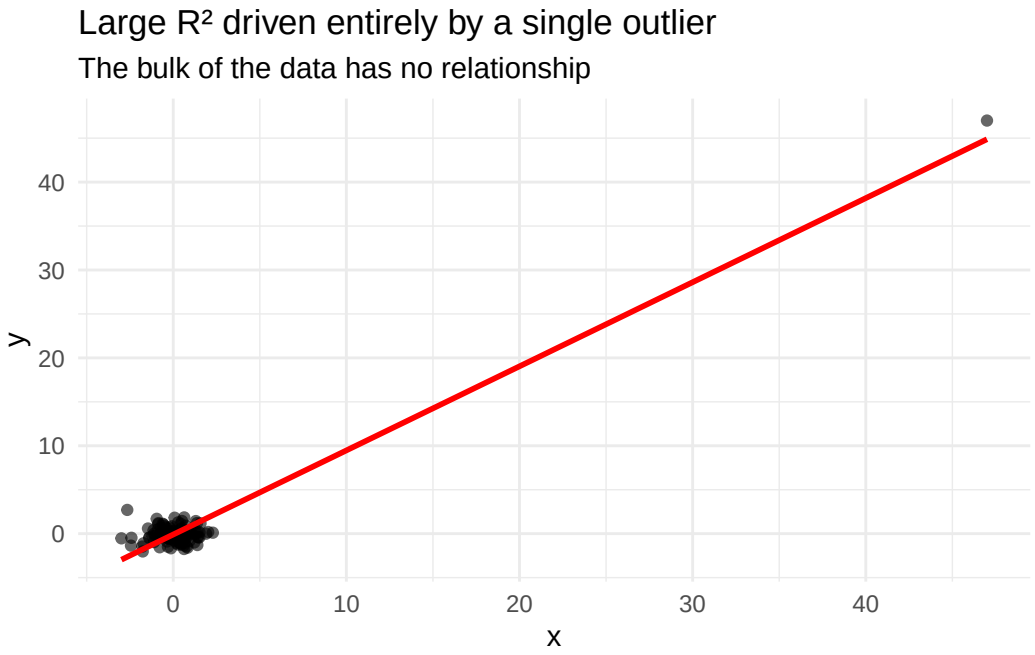
What is the hardest thing you have to do in the next 2.5 weeks?

Task: The following two tasks are completely unrelated.

1. Sketch a scatterplot with a large R^2 and no discernible linear relationship.
2. Sketch a scatterplot with a strong relationship between X and Y but an R^2 close to zero.

Solution:

1. The bulk of the points have no relationship. A single outlier influences the value of R^2.

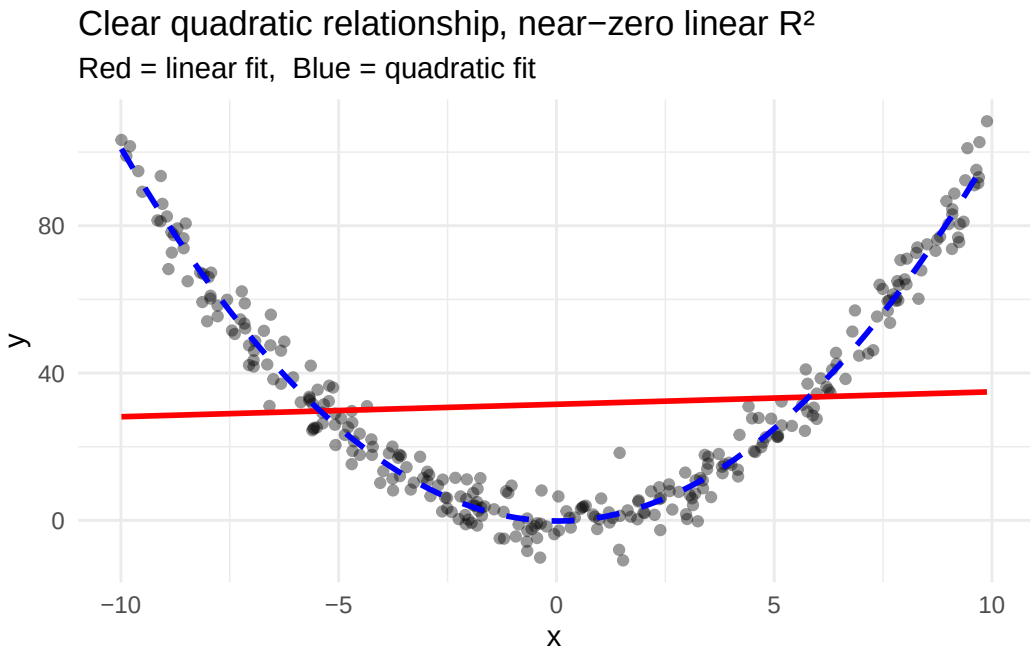



```
lm(y ~ x, data = data) |> glance()
```

```
# A tibble: 1 x 12
  r.squared adj.r.squared sigma statistic  p.value    df logLik   AIC   BIC
      <dbl>         <dbl> <dbl>     <dbl>    <dbl> <dbl>  <dbl> <dbl> <dbl>
1     0.922         0.921  1.34     1165. 1.44e-56     1  -172.  350.  358.
# i 3 more variables: deviance <dbl>, df.residual <int>, nobs <int>
```

2

. Clear quadratic relationship but no linear relationship!




```
lm(y ~ x, data = data) |> glance()
```

```
# A tibble: 1 x 12
  r.squared adj.r.squared sigma statistic p.value    df logLik   AIC   BIC
      <dbl>         <dbl> <dbl>     <dbl>   <dbl> <dbl>  <dbl> <dbl> <dbl>
1   0.00416      0.000815  29.5      1.24   0.266     1 -1439. 2885. 2896.
# i 3 more variables: deviance <dbl>, df.residual <int>, nobs <int>
```

```
praise()
```

```
[1] "You are wicked!"
```