Solutions to Practice for Quiz 6

Math 125 (Introductory Statistics) Kovitz Spring 2025

There are 5 degees of freedom: one less than the number of categories.

The expected values are all $210 \times (1/6)$, or 35.

For each category, subtract the expected value from the observed, square the result, and then divide by 35, the expected.

Here is the first calculation: $\frac{(22-35)^2}{35} = 169/35 = 4.829.$

Add the six results. This is χ^2 : 4.829 + 0.457 + 1.4 + 0.457 + 0.714 + 1.4 = 9.257.

Or, since they are all over 35, add the six squares of the (observed – expected) and then divide by 35: $\frac{169+16+49+16+25+49}{35} = \frac{324}{35} = 9.257.$

From the χ^2 -table, the value of P is estimated at 10%.

With P greater than 5%, chance error is a reasonable explanation. Accept the null hypothesis: the die is fair.

Answer: P = 10%, fair.

Caution: don't mix up χ^2 , which was 9.257, with *P*, which was read from the χ^2 -table as 10%.