

Lyman- α WG: Marseille node

What can we learn from the first observation of a $g=23$ QSO target? Is it a quasar? Is it a Lyman-alpha quasar?
What can we say about its redshift?

4 Nov 2015 Update

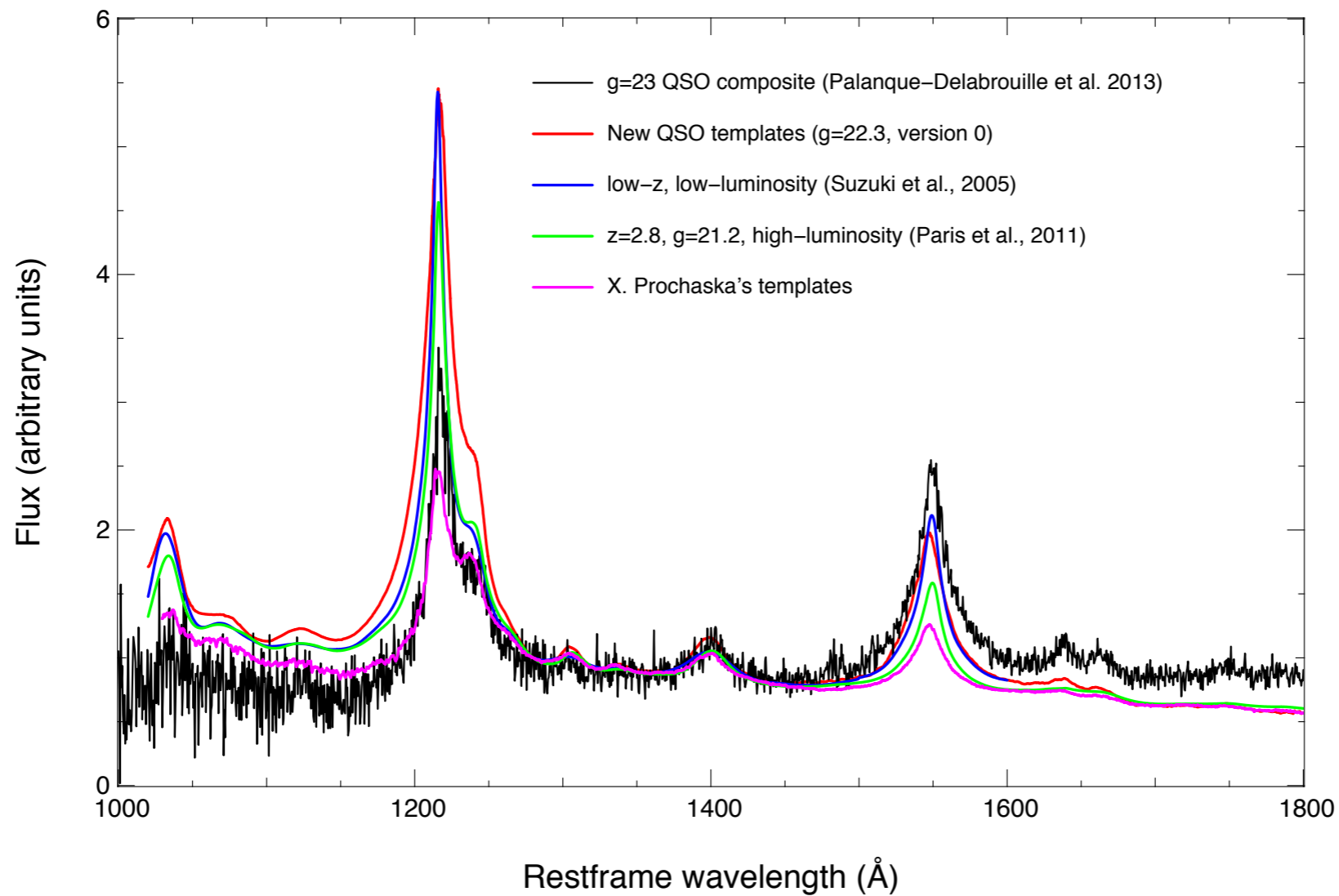
Michael Blomqvist, Elizabeth Buckley-Geer, Timothée Delubac, Julien Guy, David Kirkby, Isabelle Paris, Mat Pieri, Javier Sanchez, Debopam Som
DESI Science Workshop, Argonne Nov 2015

Main goal for week

- Produce realistic $g=23$ QSOs and test for recovery
 - QSO templates
 - Redshifted Forest + LLS + sub-DLA + DLA
 - DESIfied with $g=23$

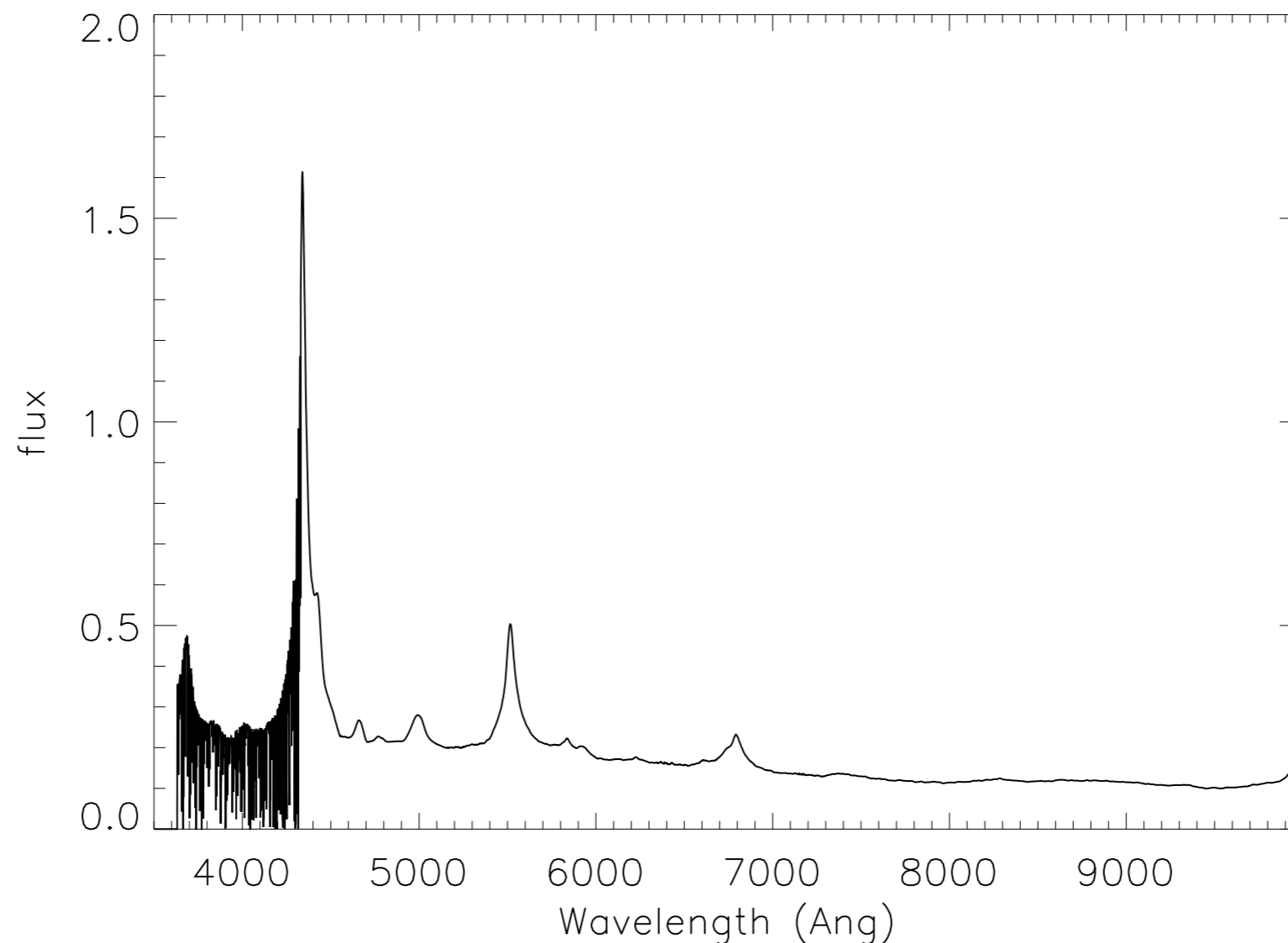
Step 1: Templates

- Templates

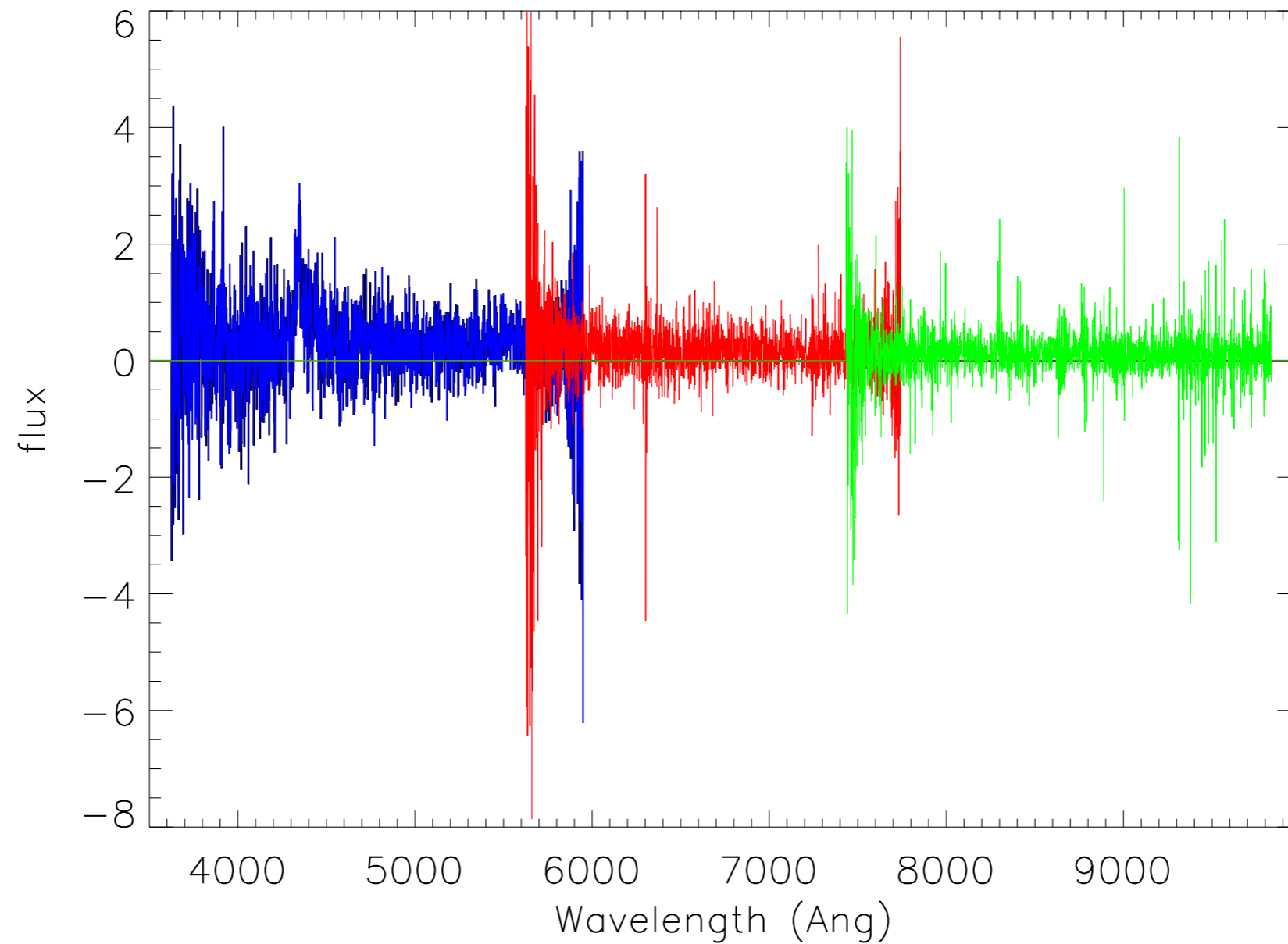


Step 2: Forests+HCD

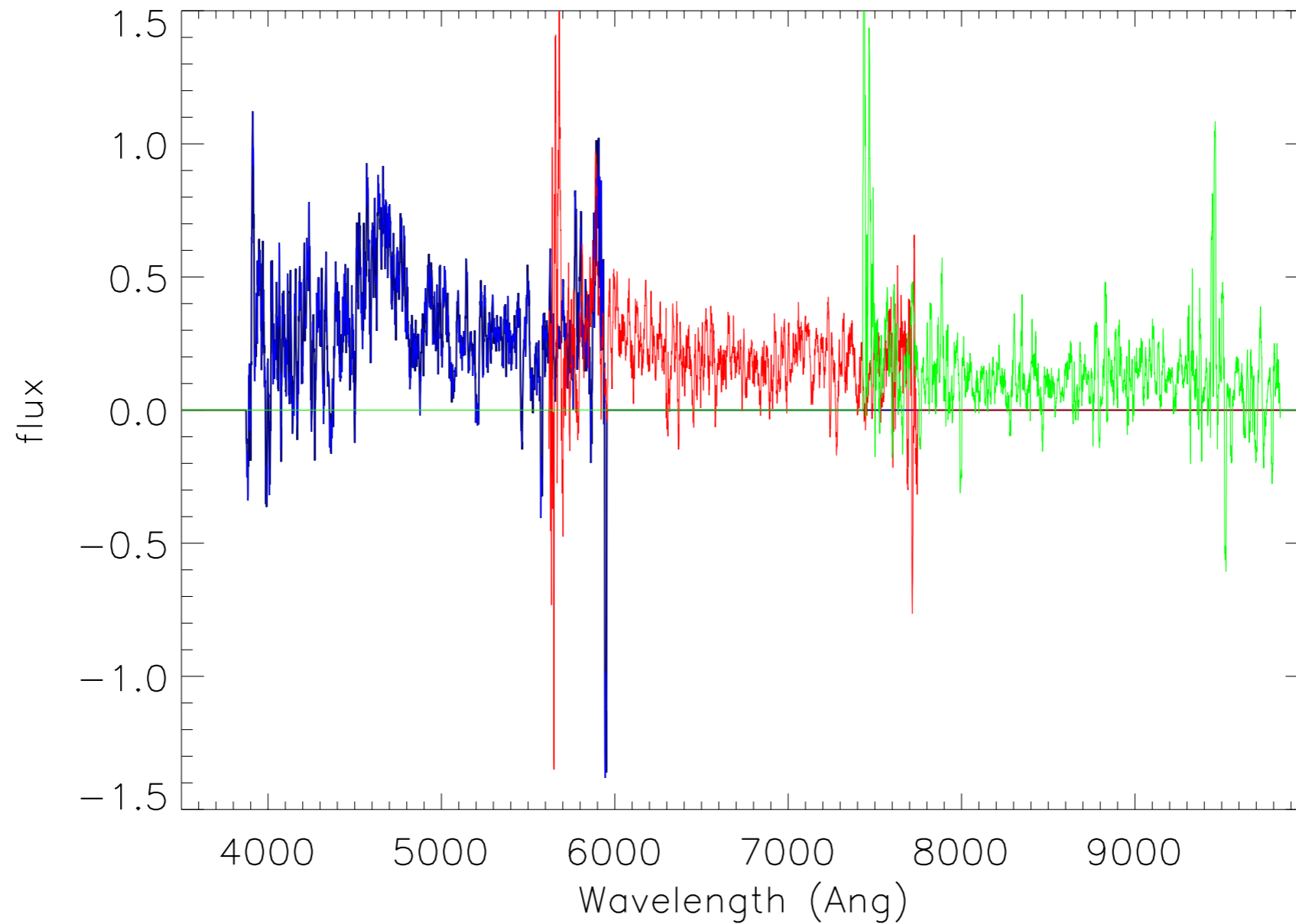
- Randomly drawn from BOSS mocks uncorrelated realistic skewers



Step 2: DESIfied

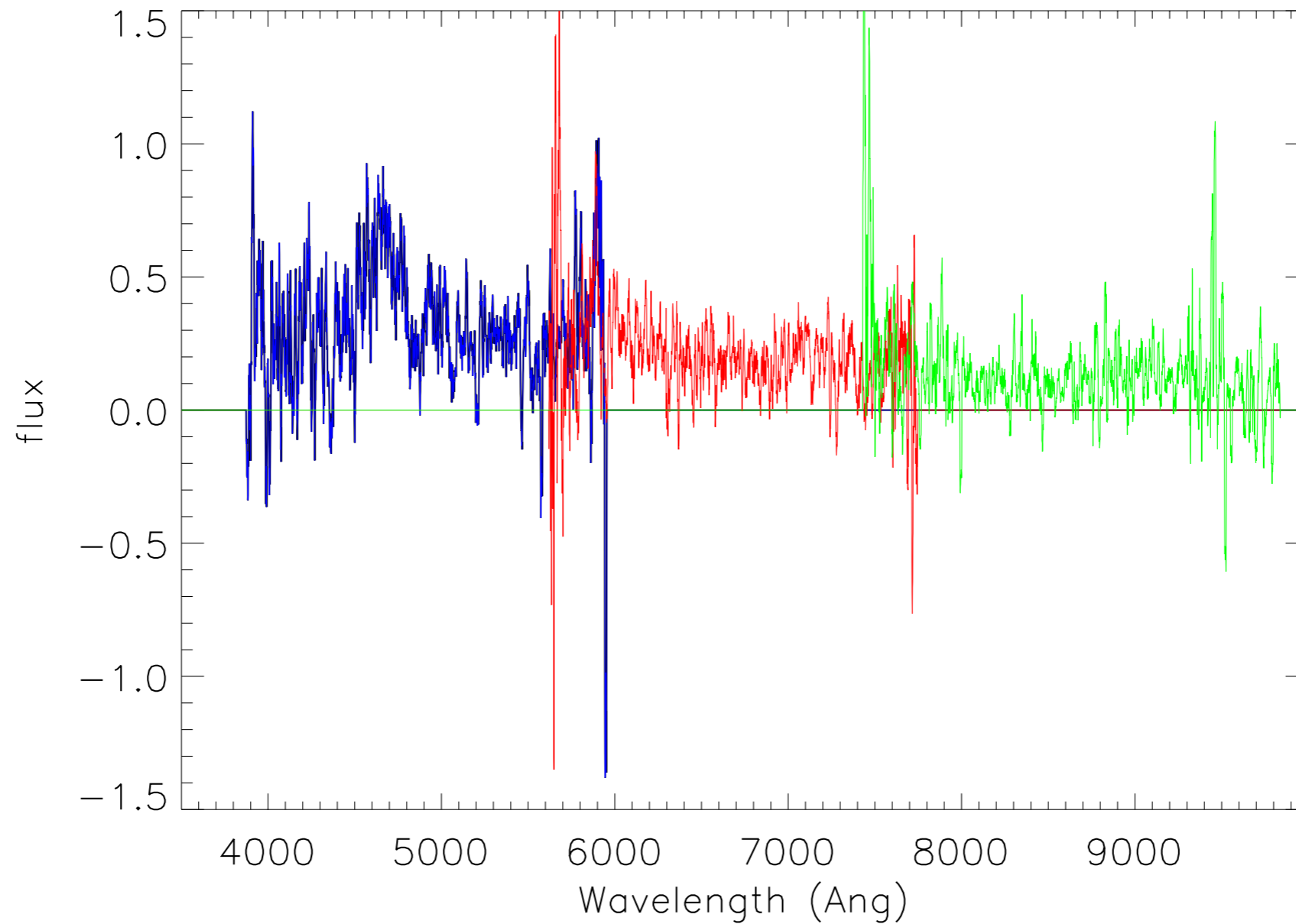


Pop Quiz: Q1



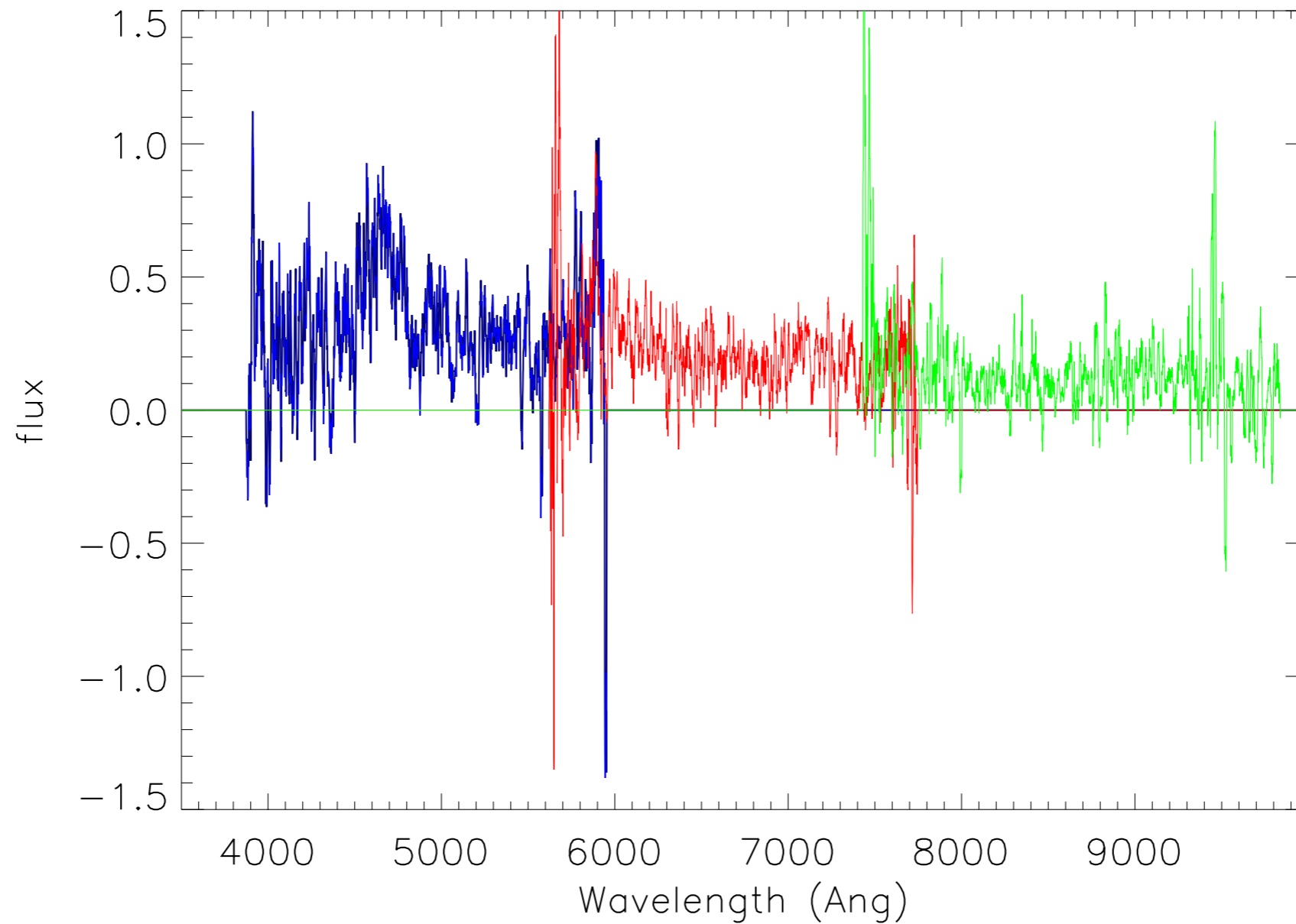
Pop Quiz:11

Isabelle: 2.83

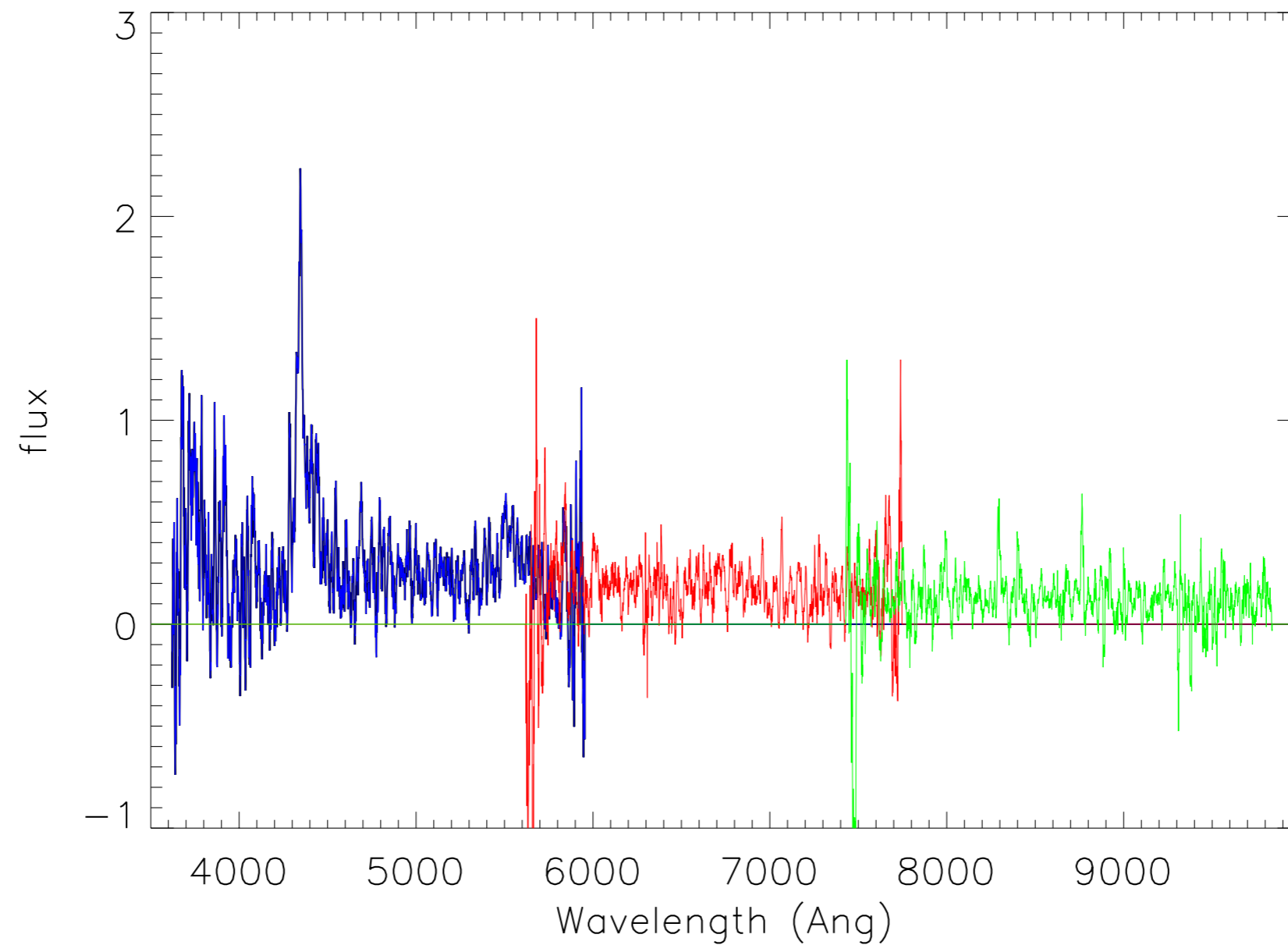


Pop Quiz:A1

Isabelle: 2.83
Answer: 2.81

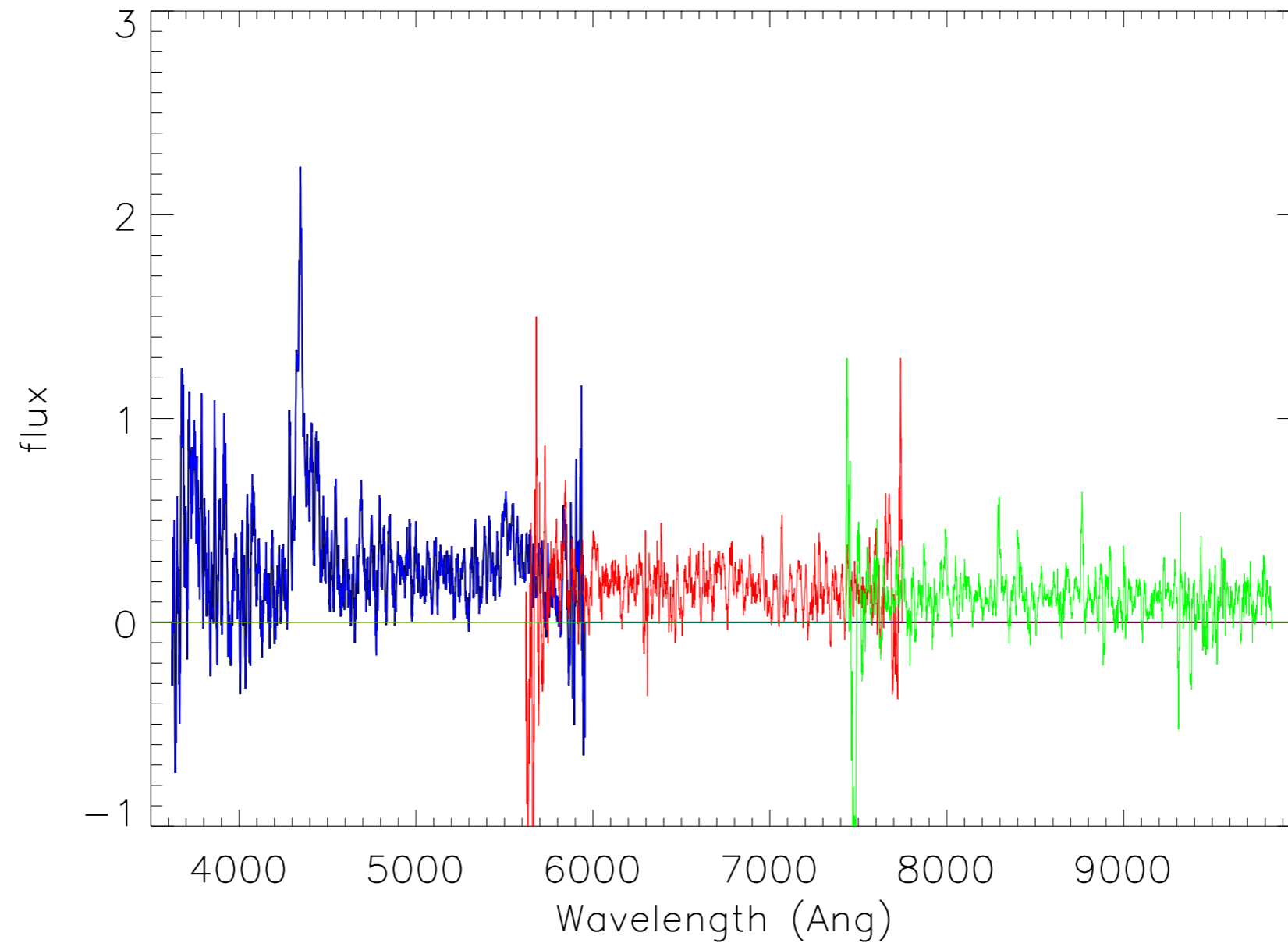


Pop Quiz: Q2



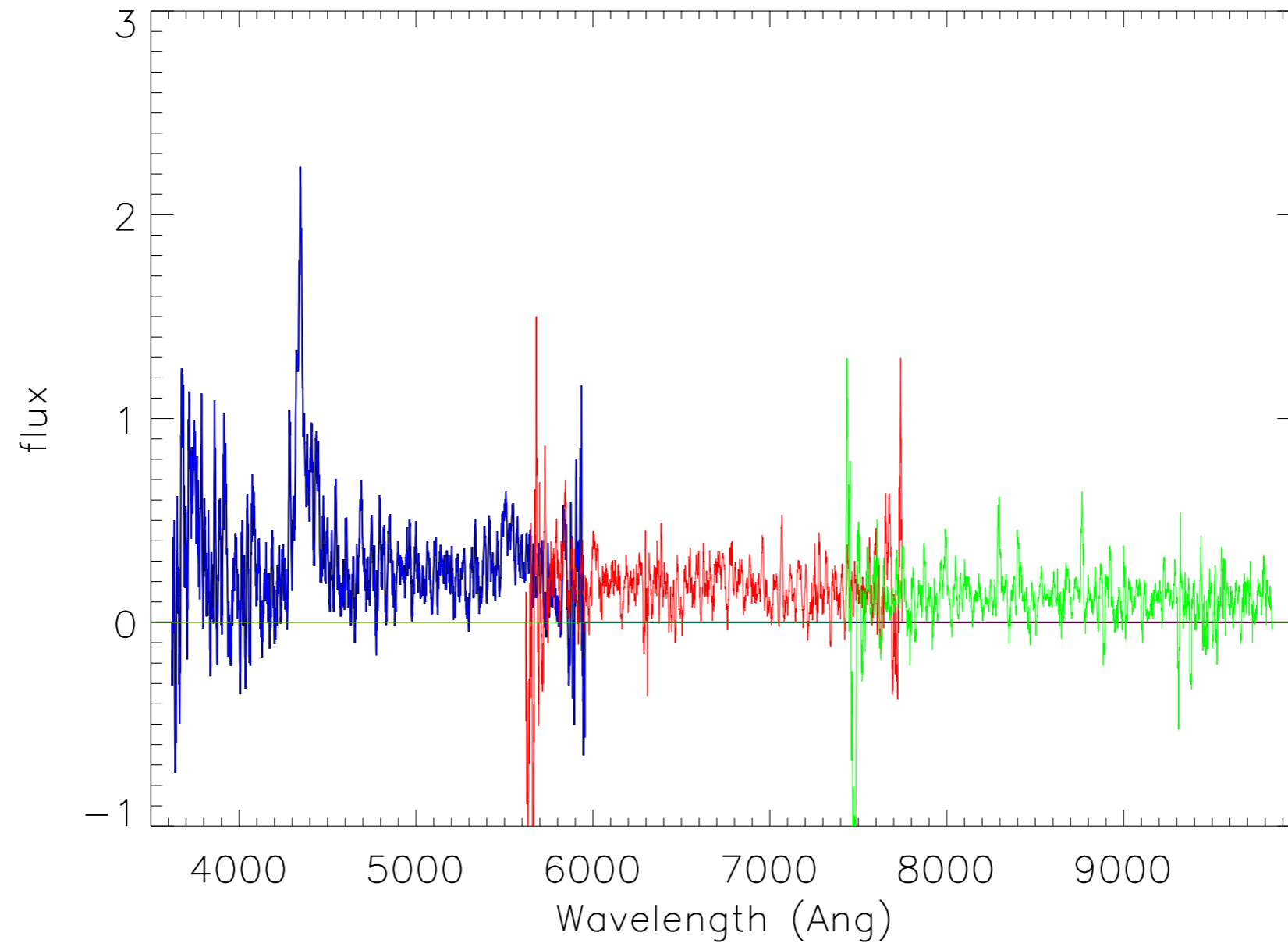
Pop Quiz: I2

Isabelle: 2.57

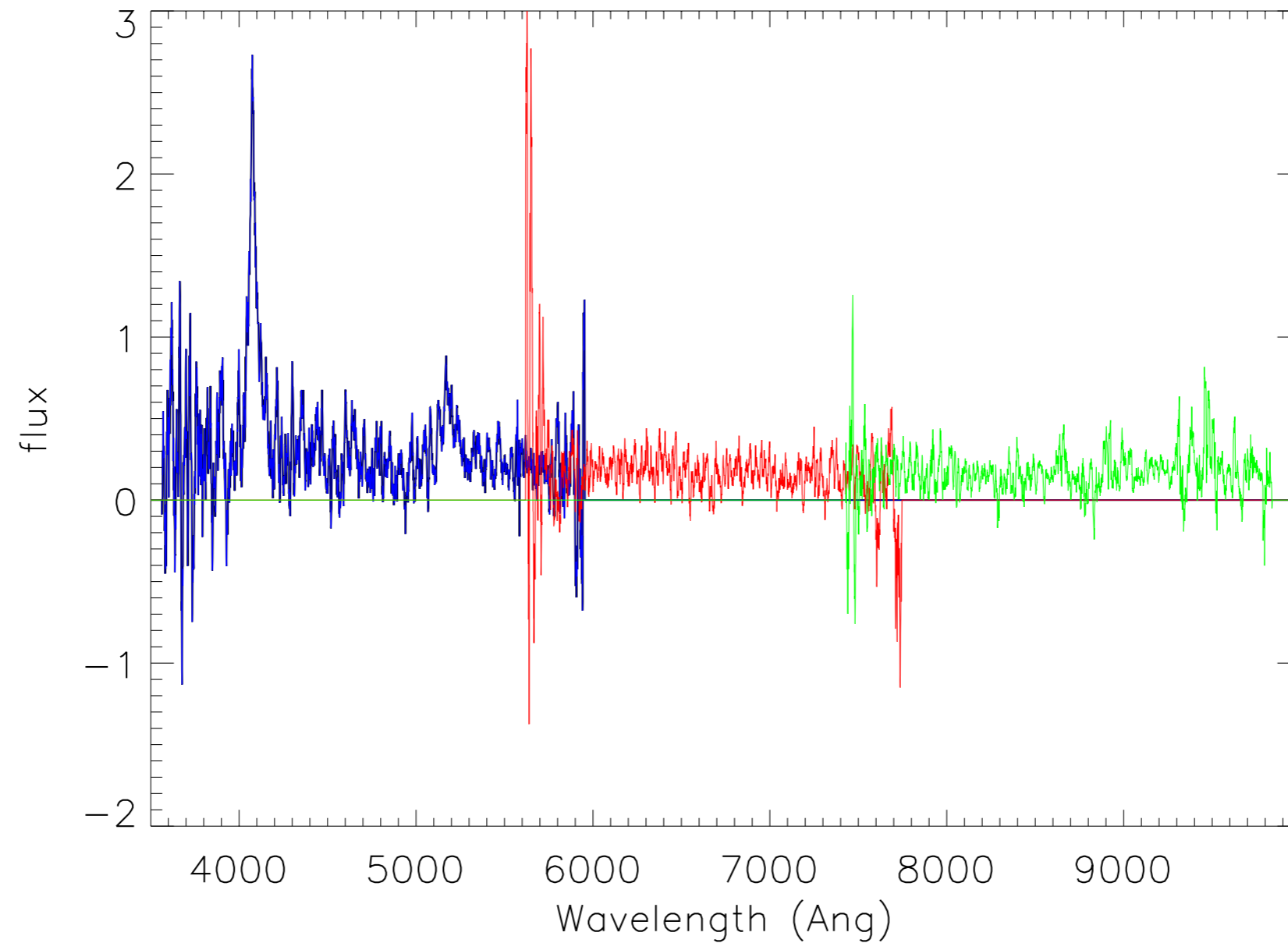


Pop Quiz:A2

Isabelle: 2.57
Answer: 2.56

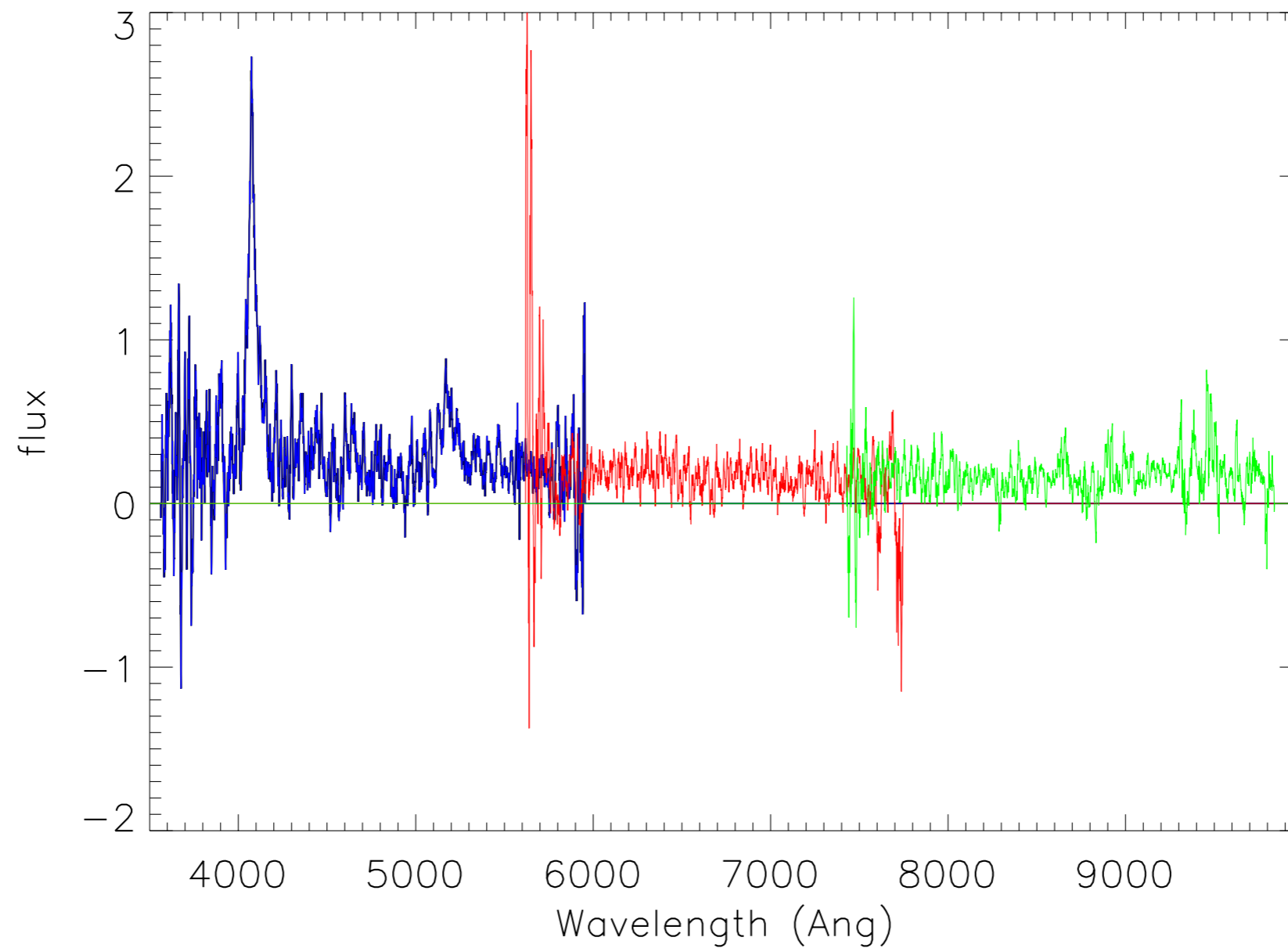


Pop Quiz: Q3



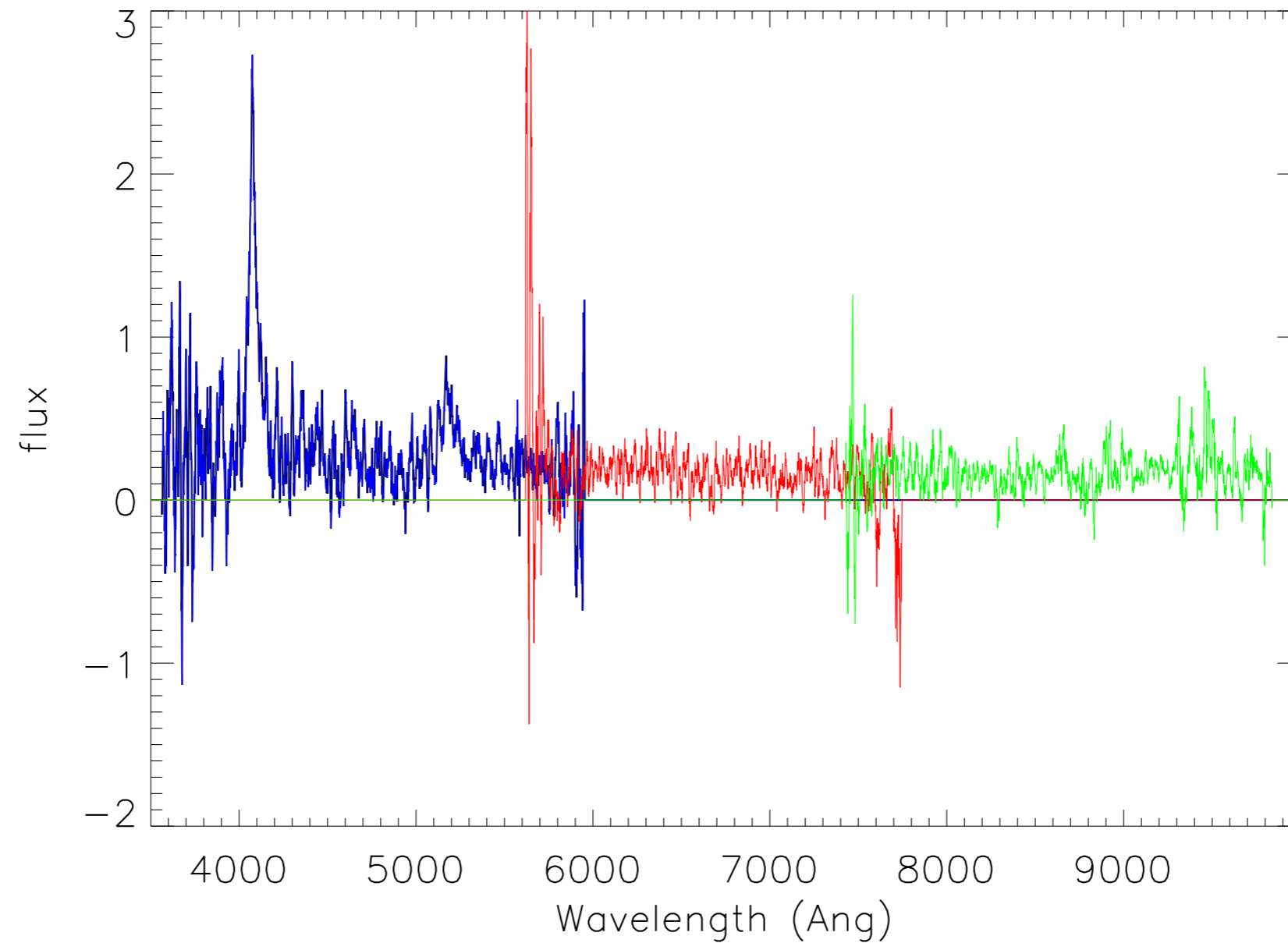
Pop Quiz:13

Isabelle: 2.34

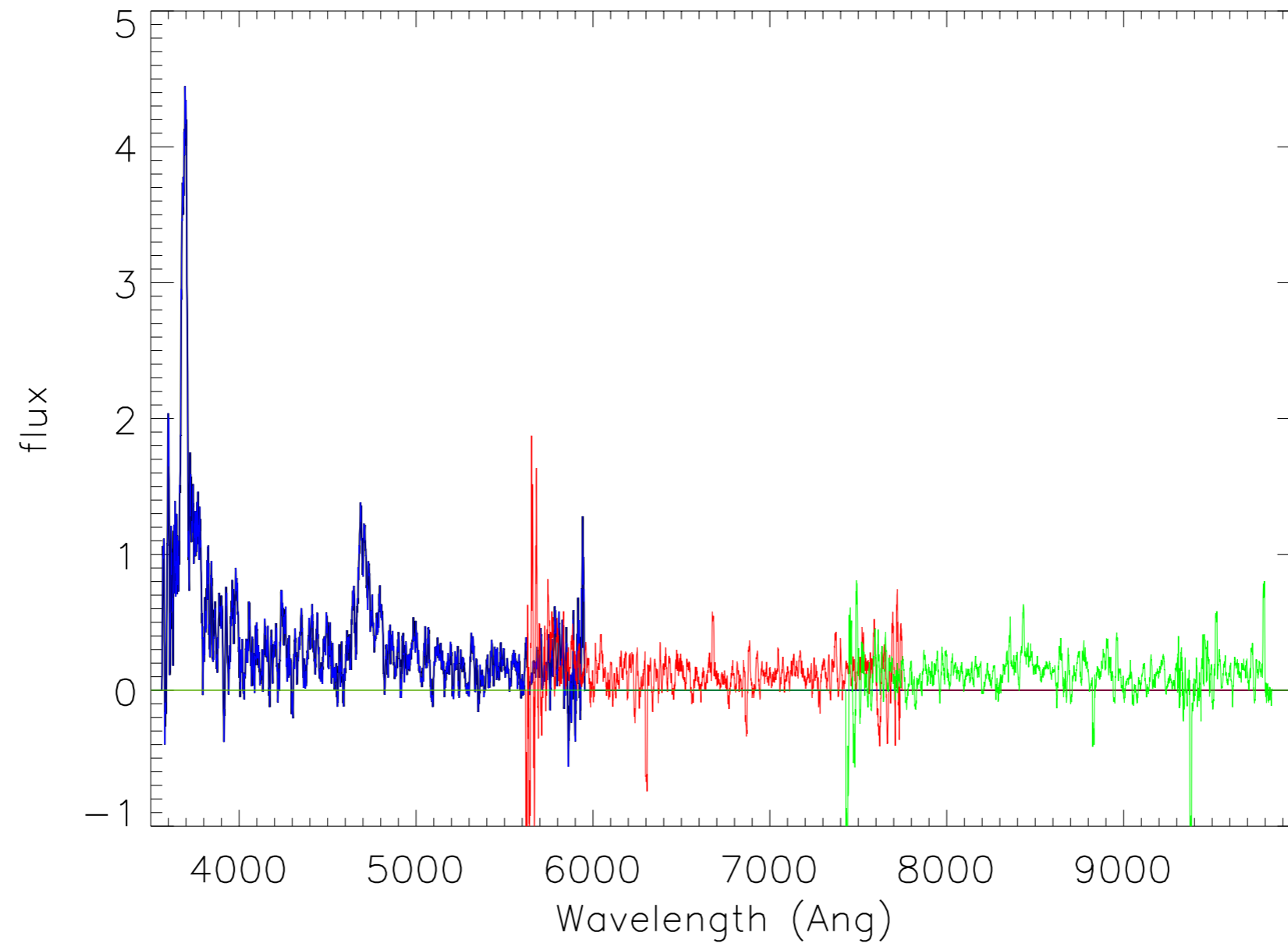


Pop Quiz:A3

Isabelle: 2.34
Answer: 2.34

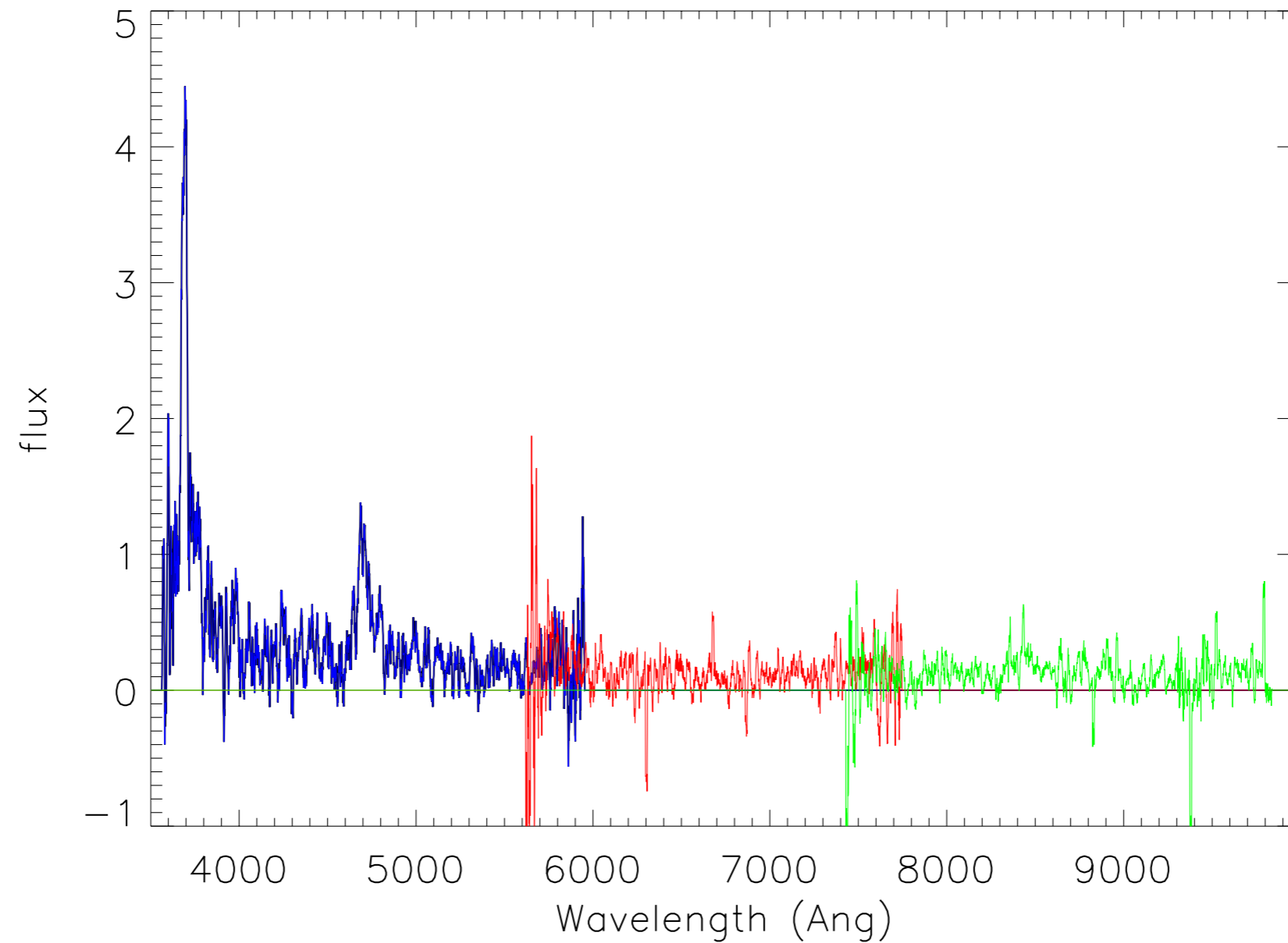


Pop Quiz: Q4



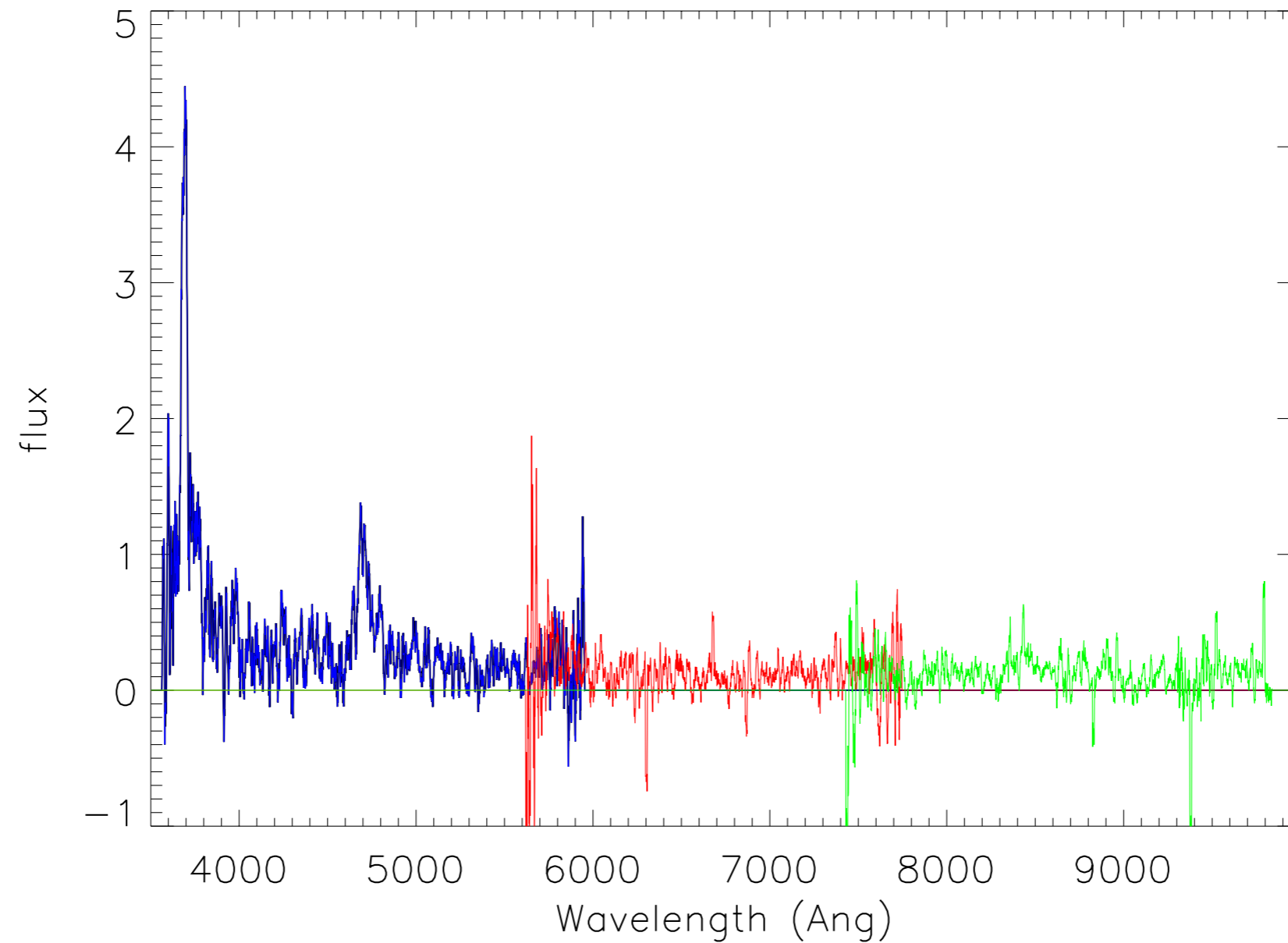
Pop Quiz:14

Isabelle: 2.04

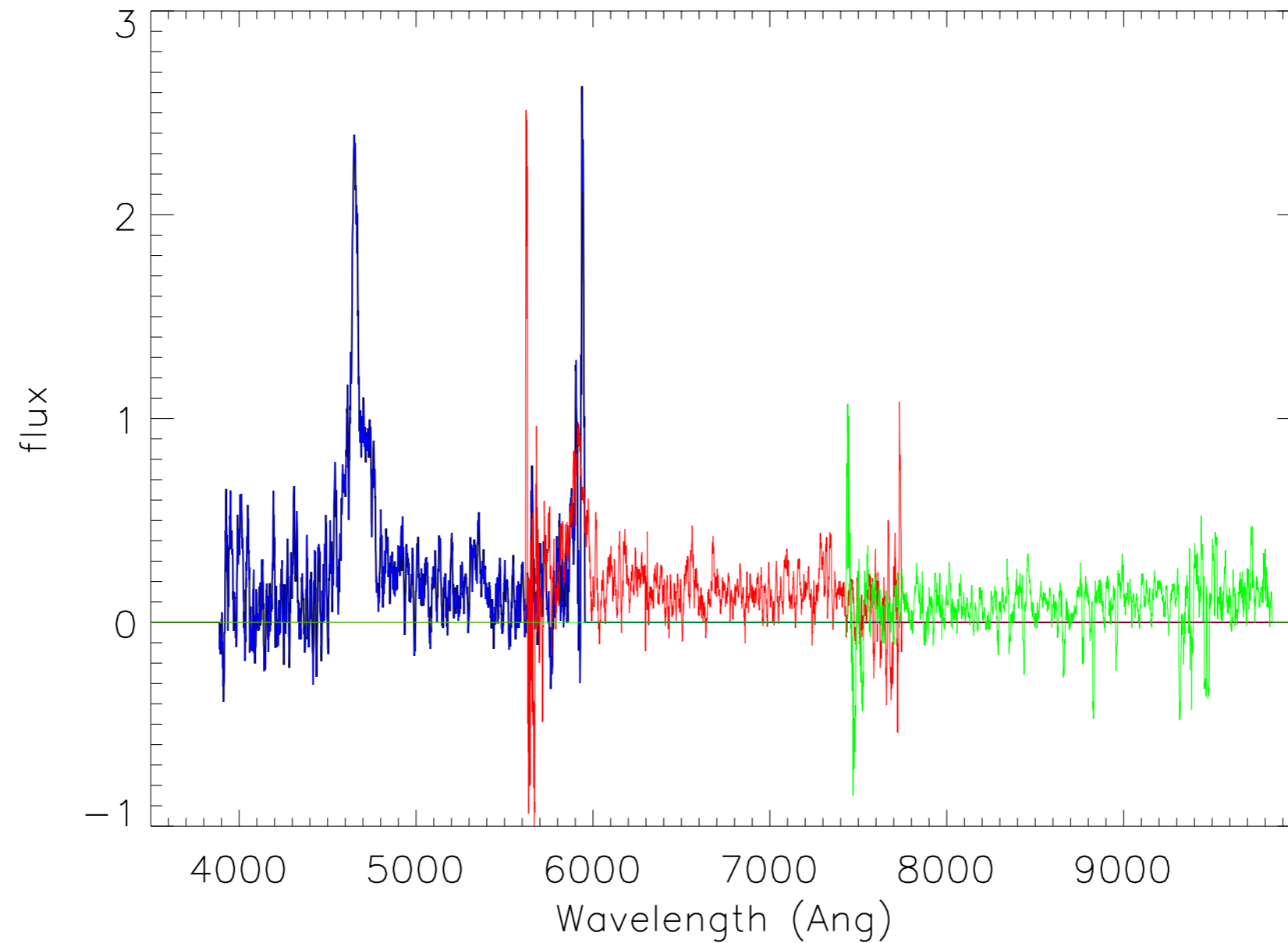


Pop Quiz:A4

Isabelle: 2.04
Answer: 2.03

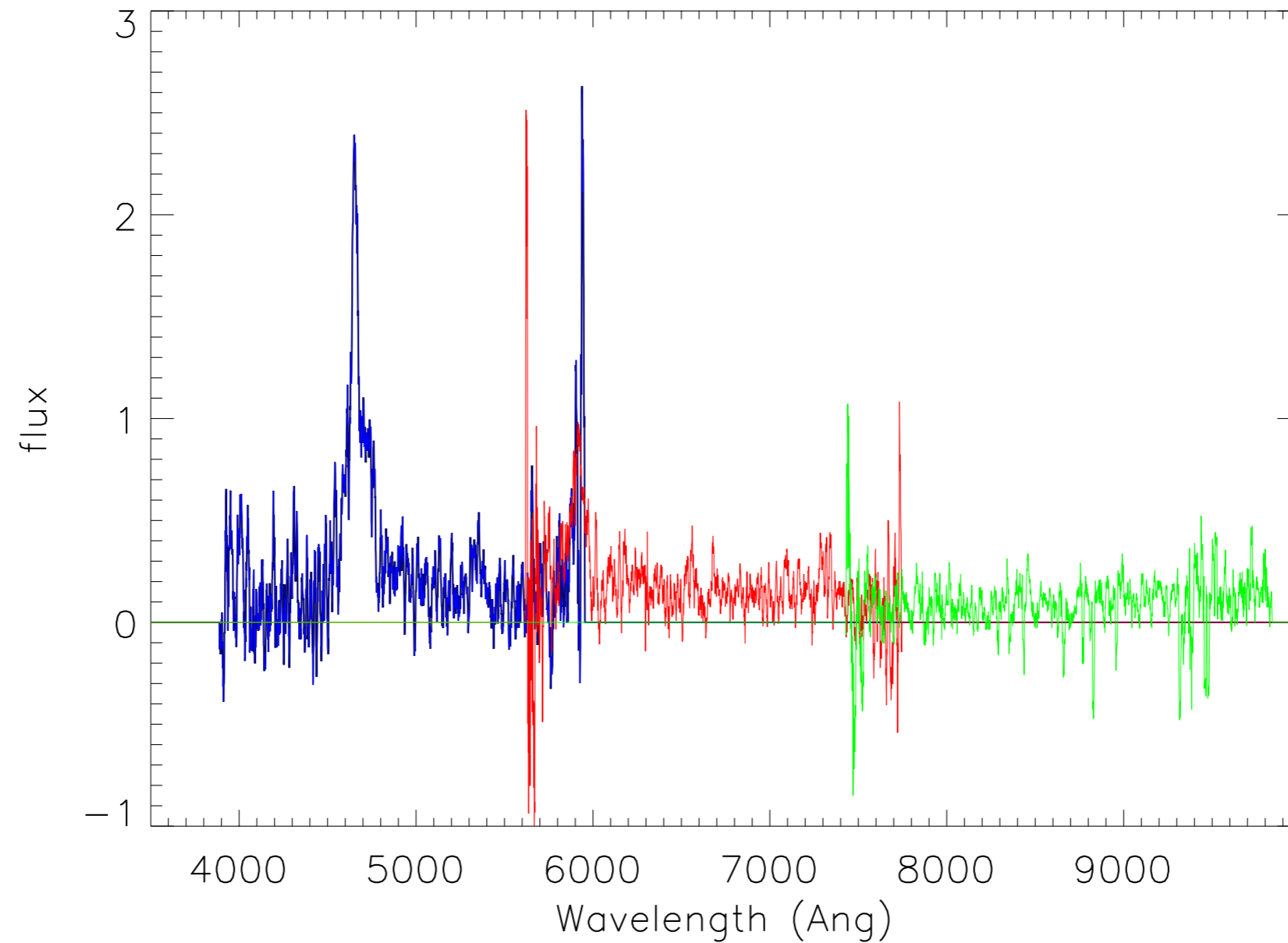


Pop Quiz: Q5



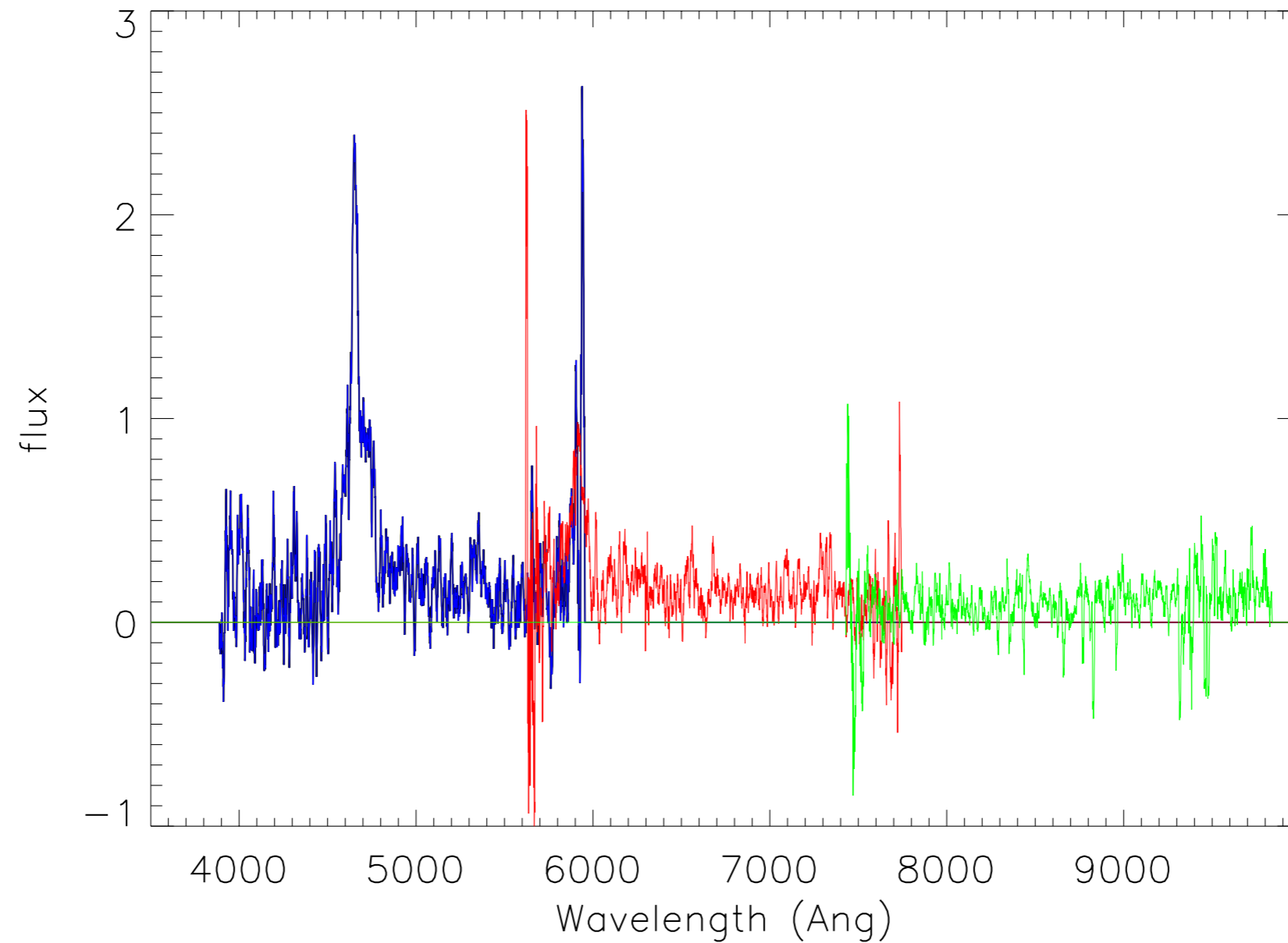
Pop Quiz:15

Isabelle: 2.83

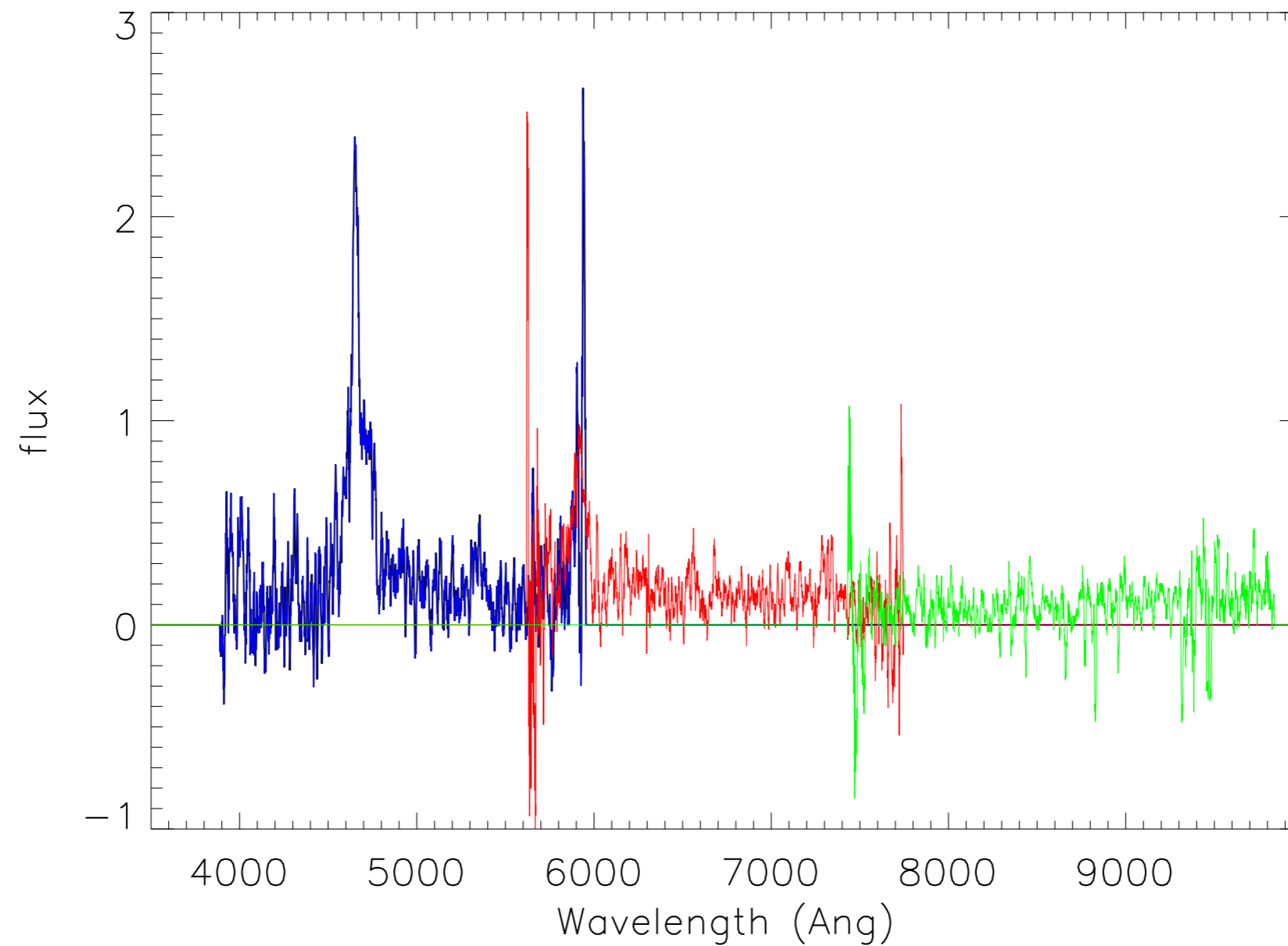


Pop Quiz:A5

Isabelle: 2.83
Answer: 2.82

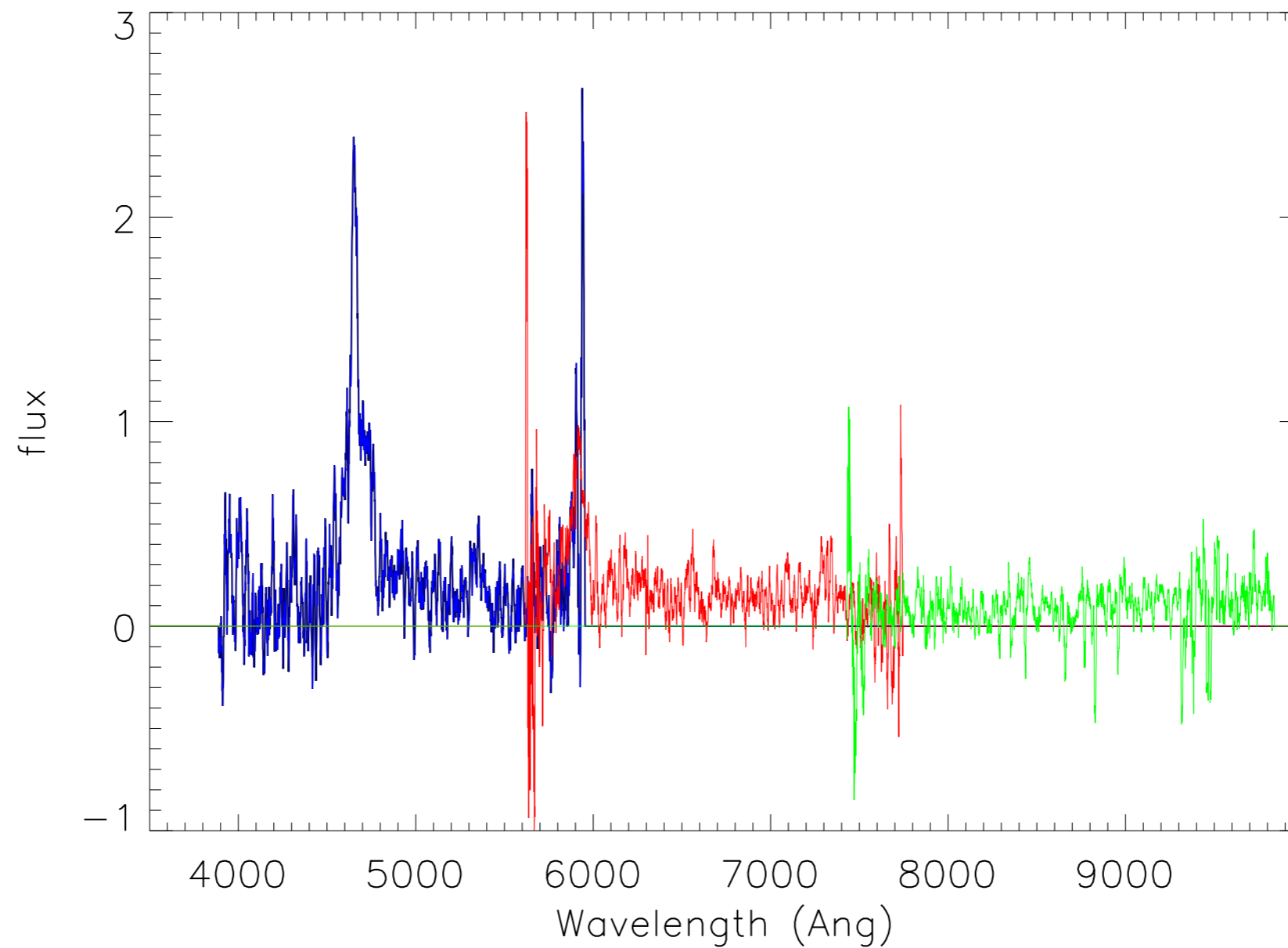


Pop Quiz: Q6



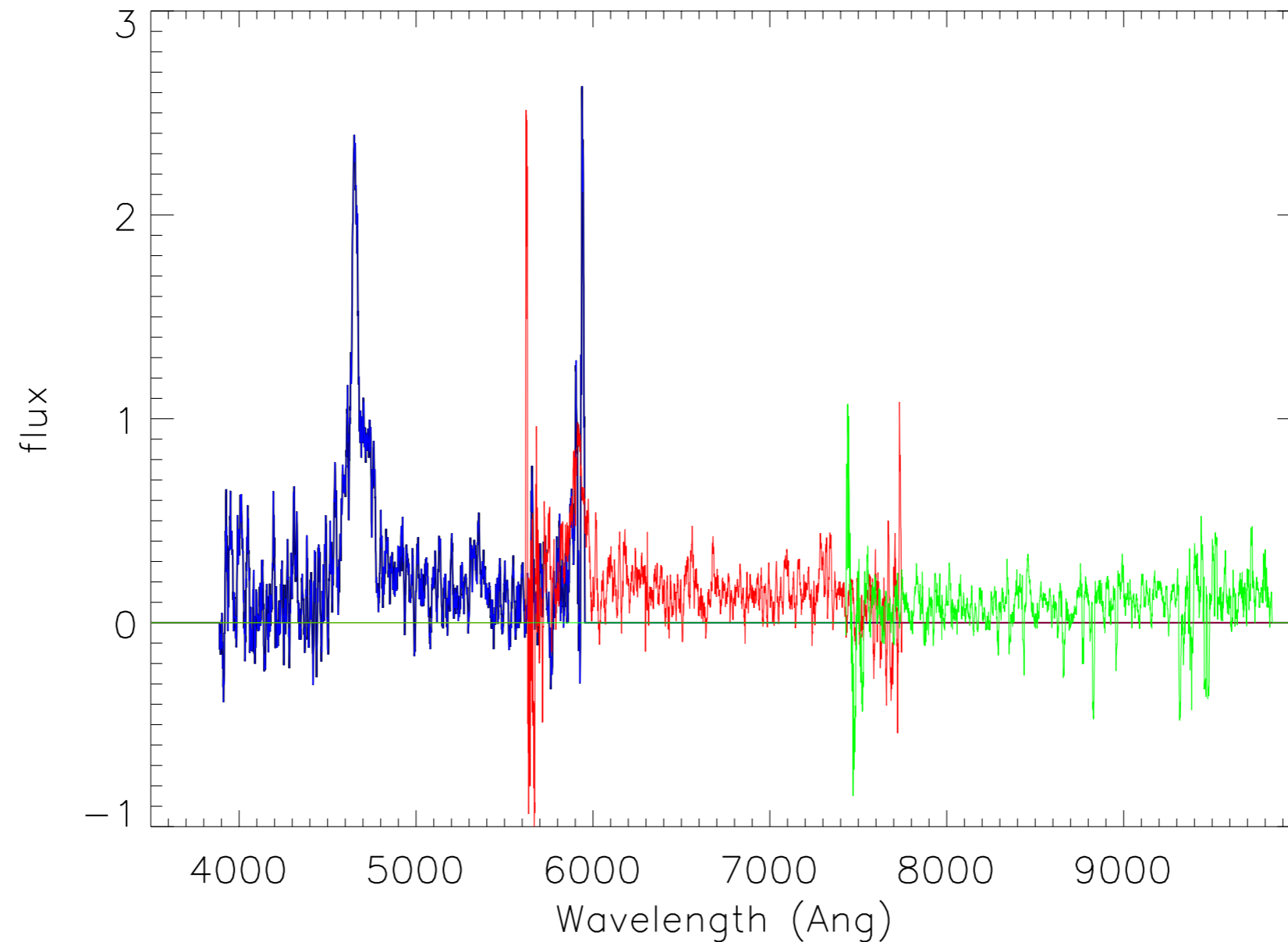
Pop Quiz:16

Isabelle: 2.97

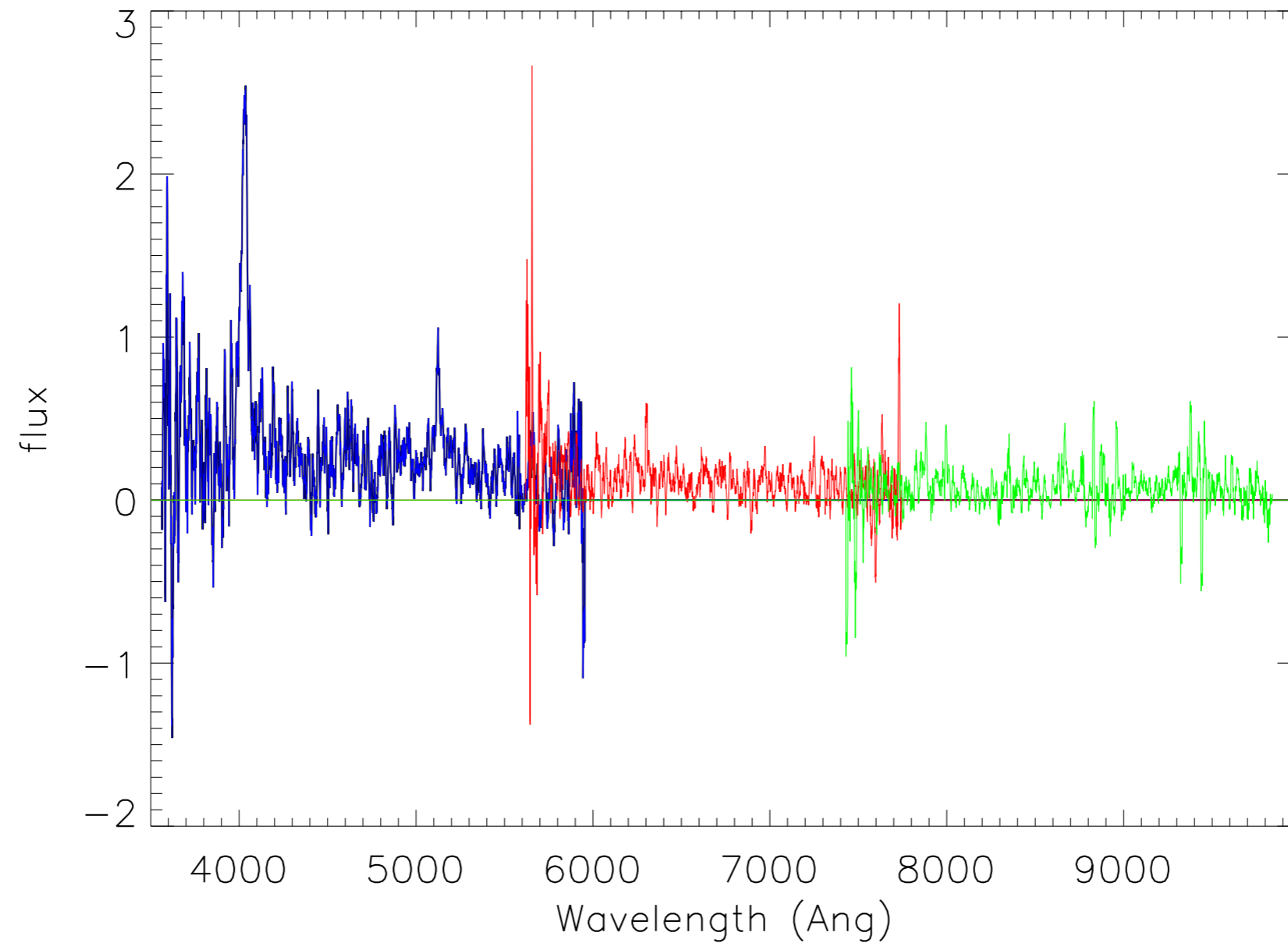


Pop Quiz:A6

Isabelle: 2.97
Answer: 2.96

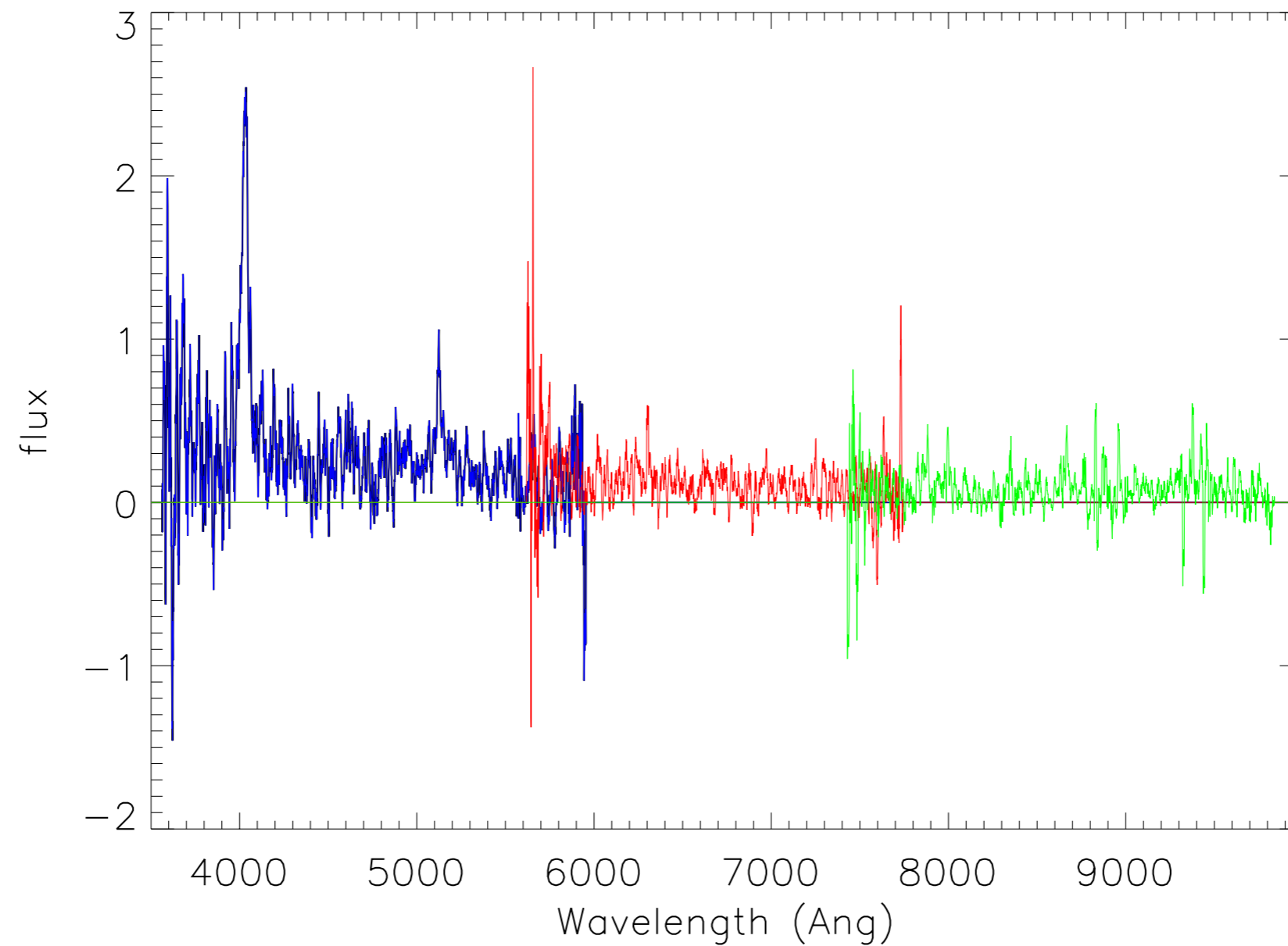


Pop Quiz:Q7



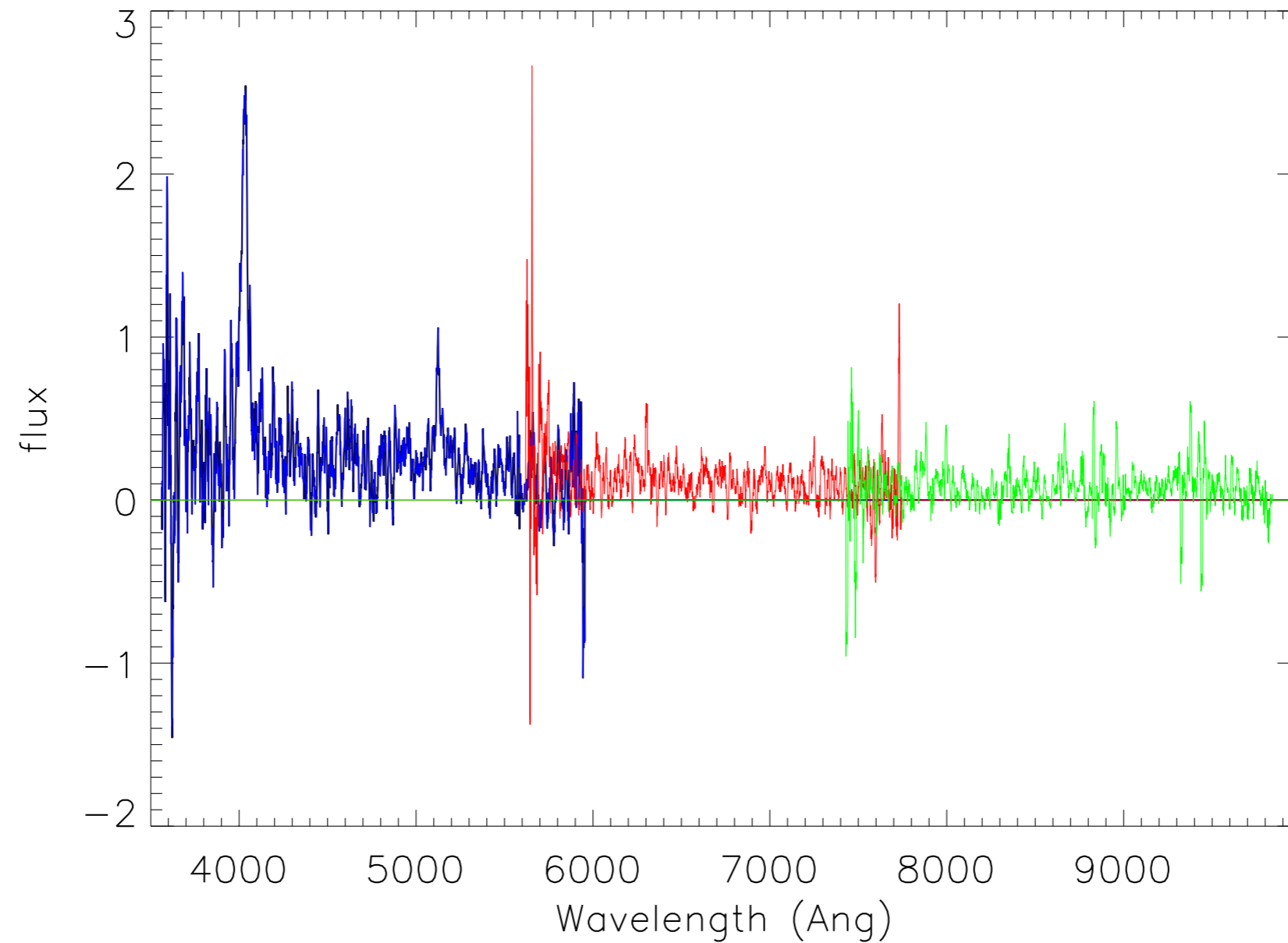
Pop Quiz:17

Isabelle: 2.32

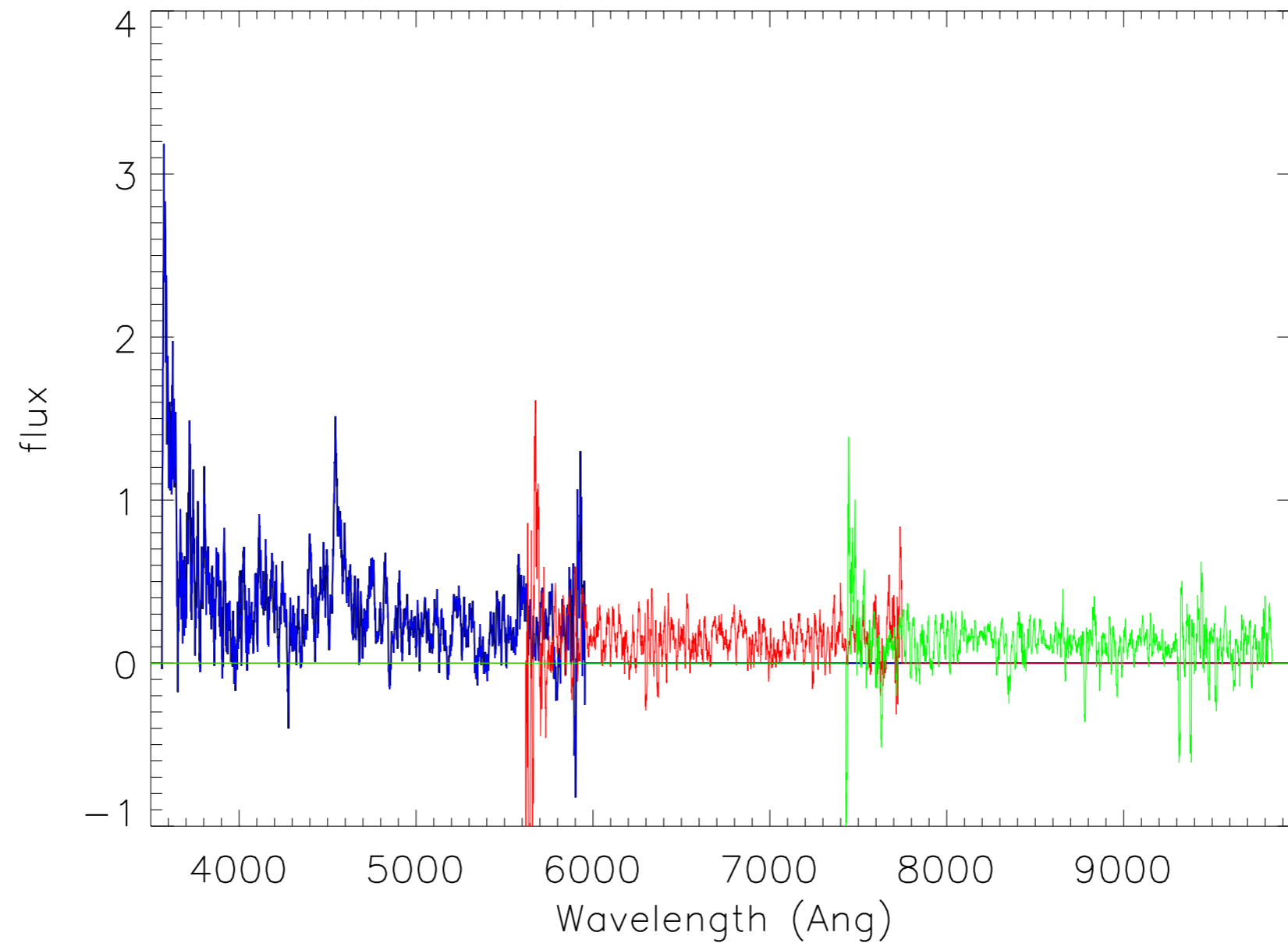


Pop Quiz:A7

Isabelle: 2.32
Answer: 2.31

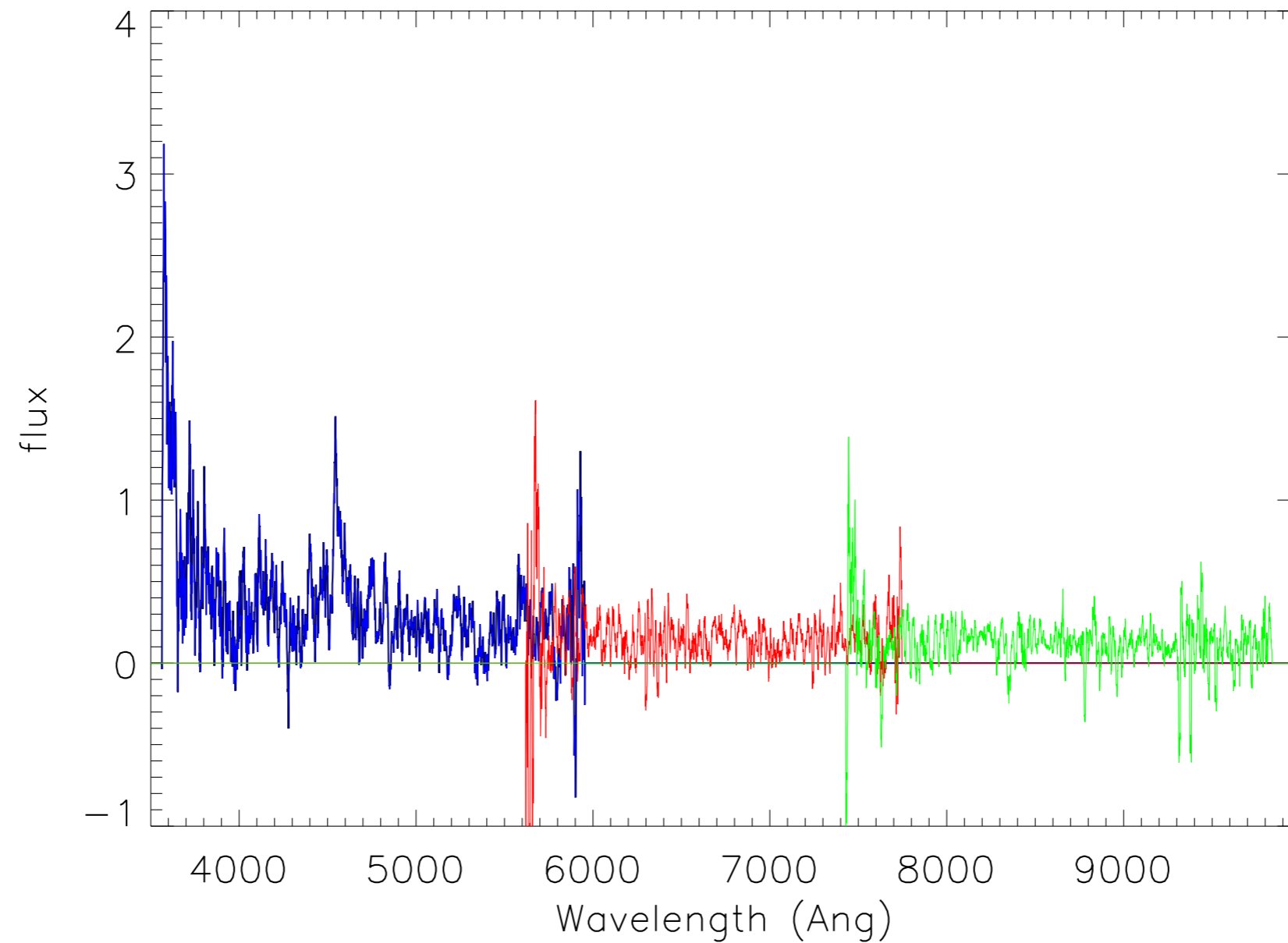


Pop Quiz: Q8



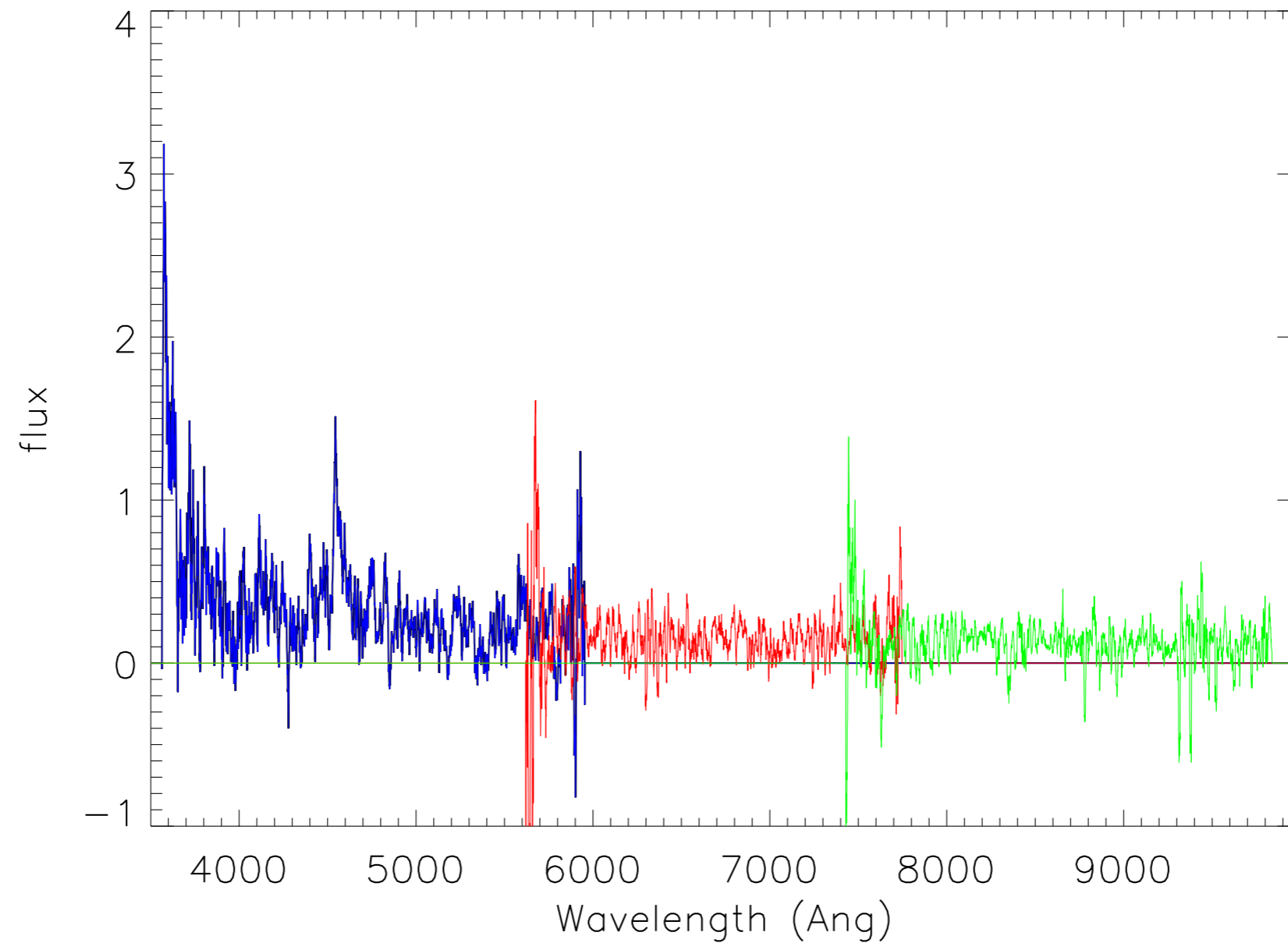
Pop Quiz:18

Isabelle: 1.93

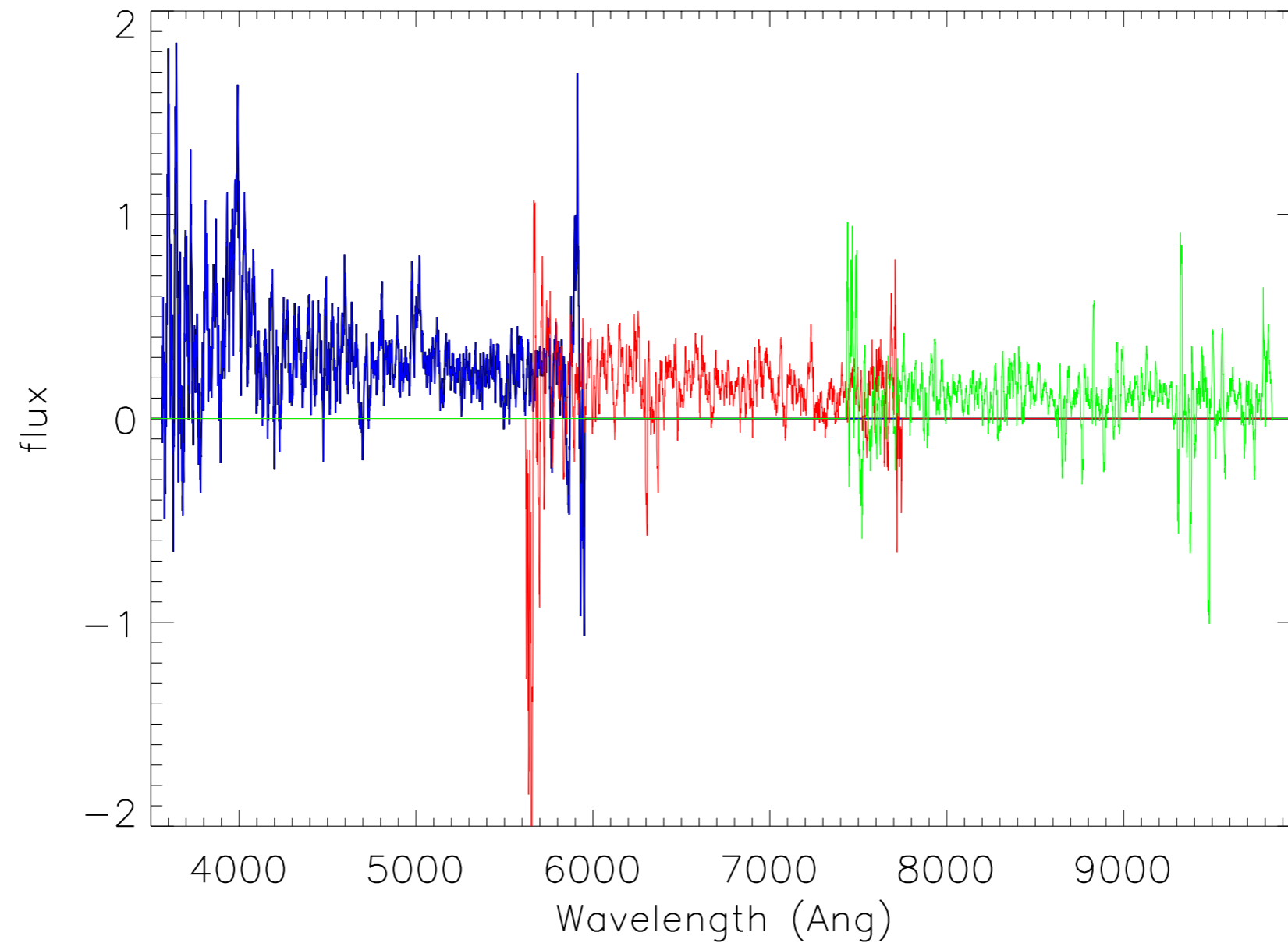


Pop Quiz:A8

Isabelle:1.93
Answer: 1.94

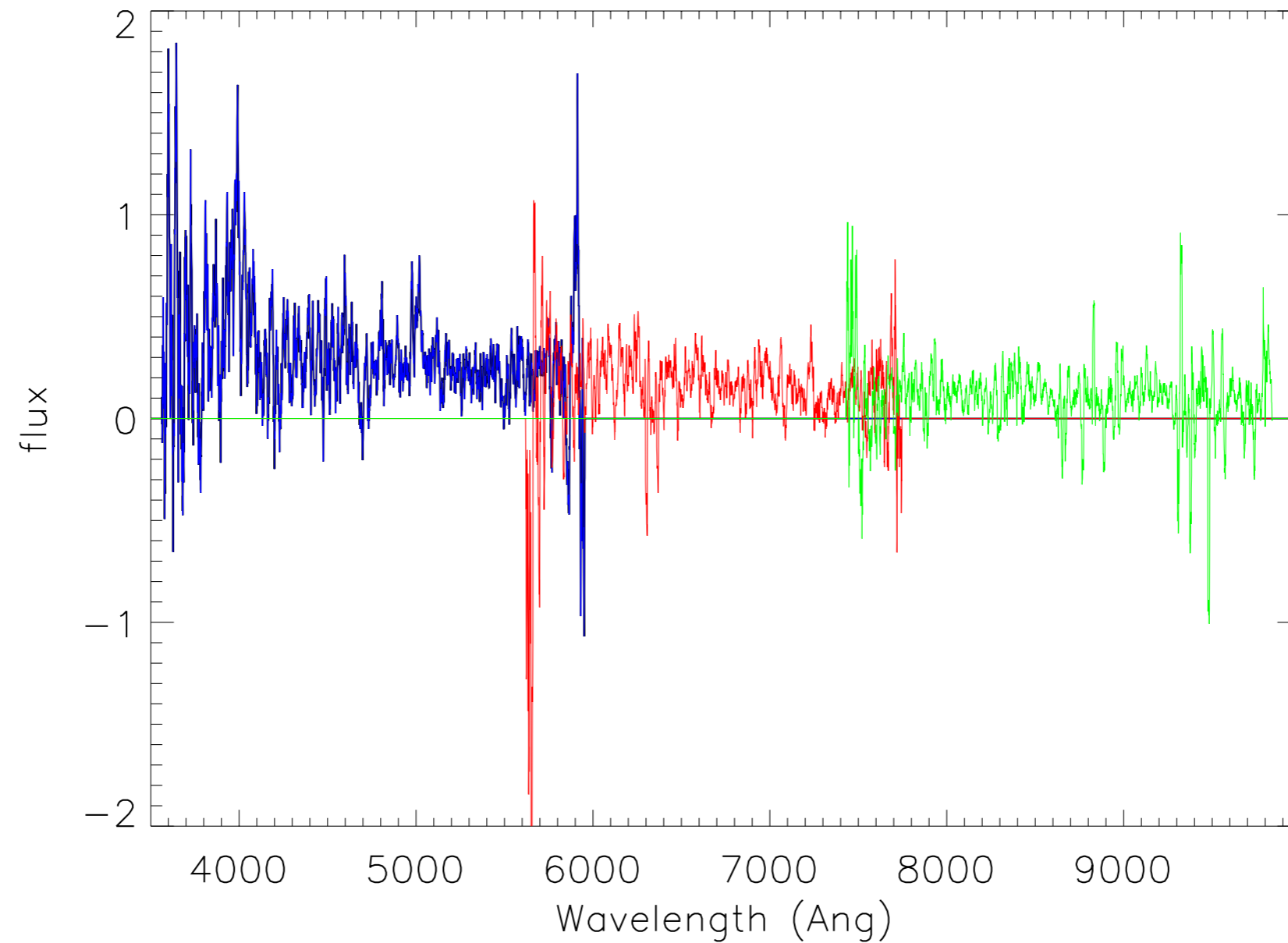


Pop Quiz: Q9



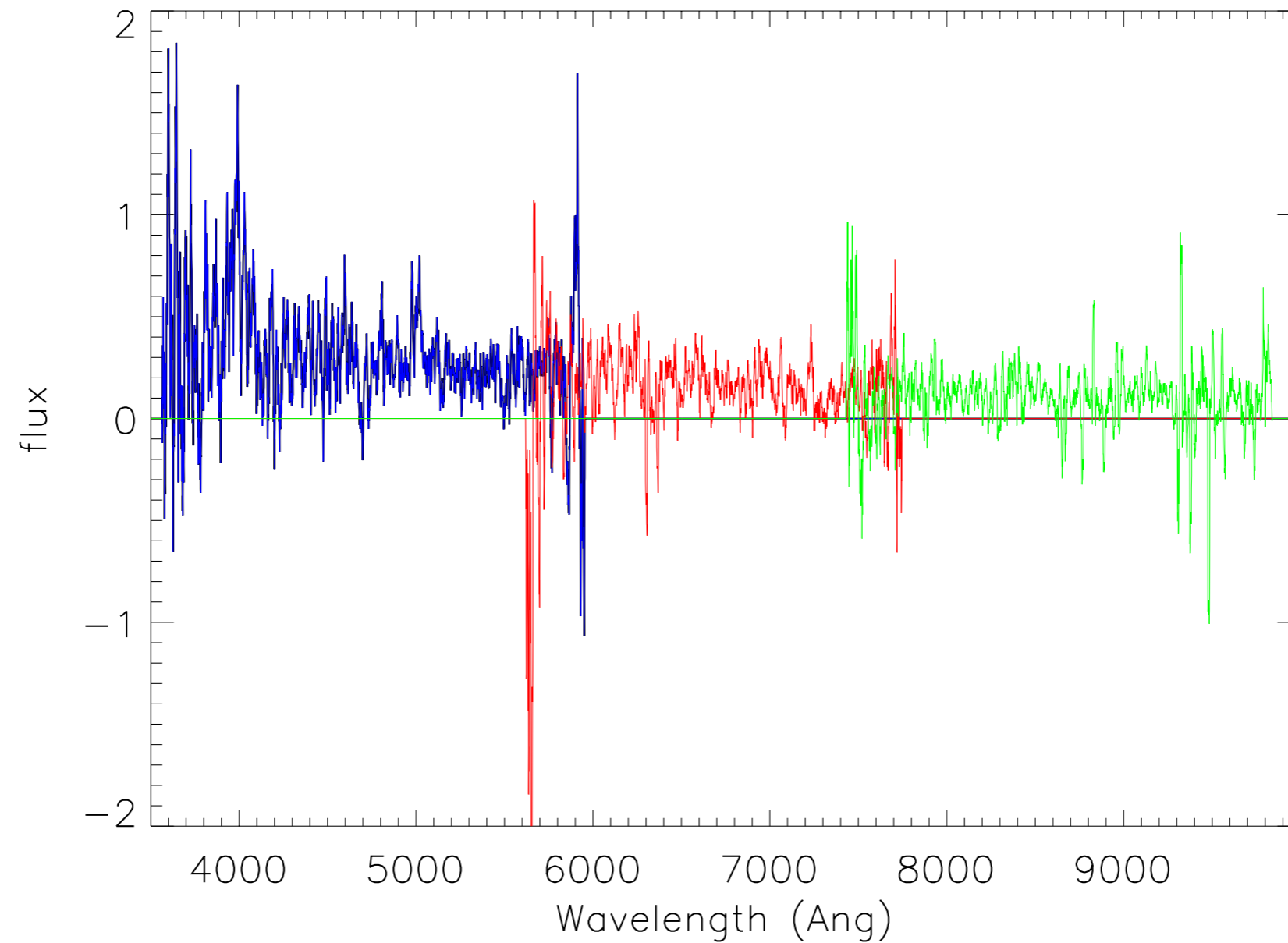
Pop Quiz:19

Isabelle: 2.27

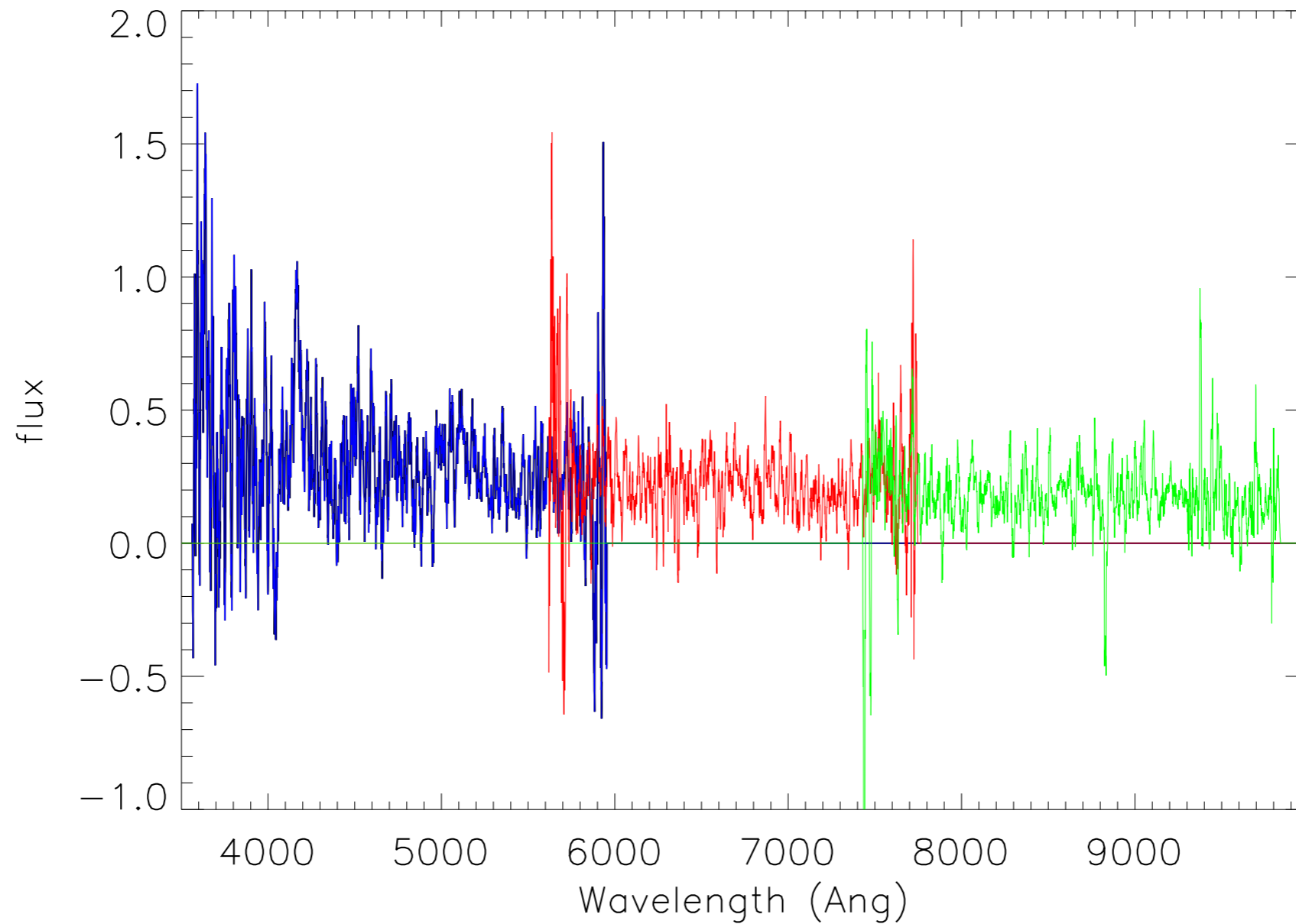


Pop Quiz:A9

Isabelle: 2.27
Answer: 2.27

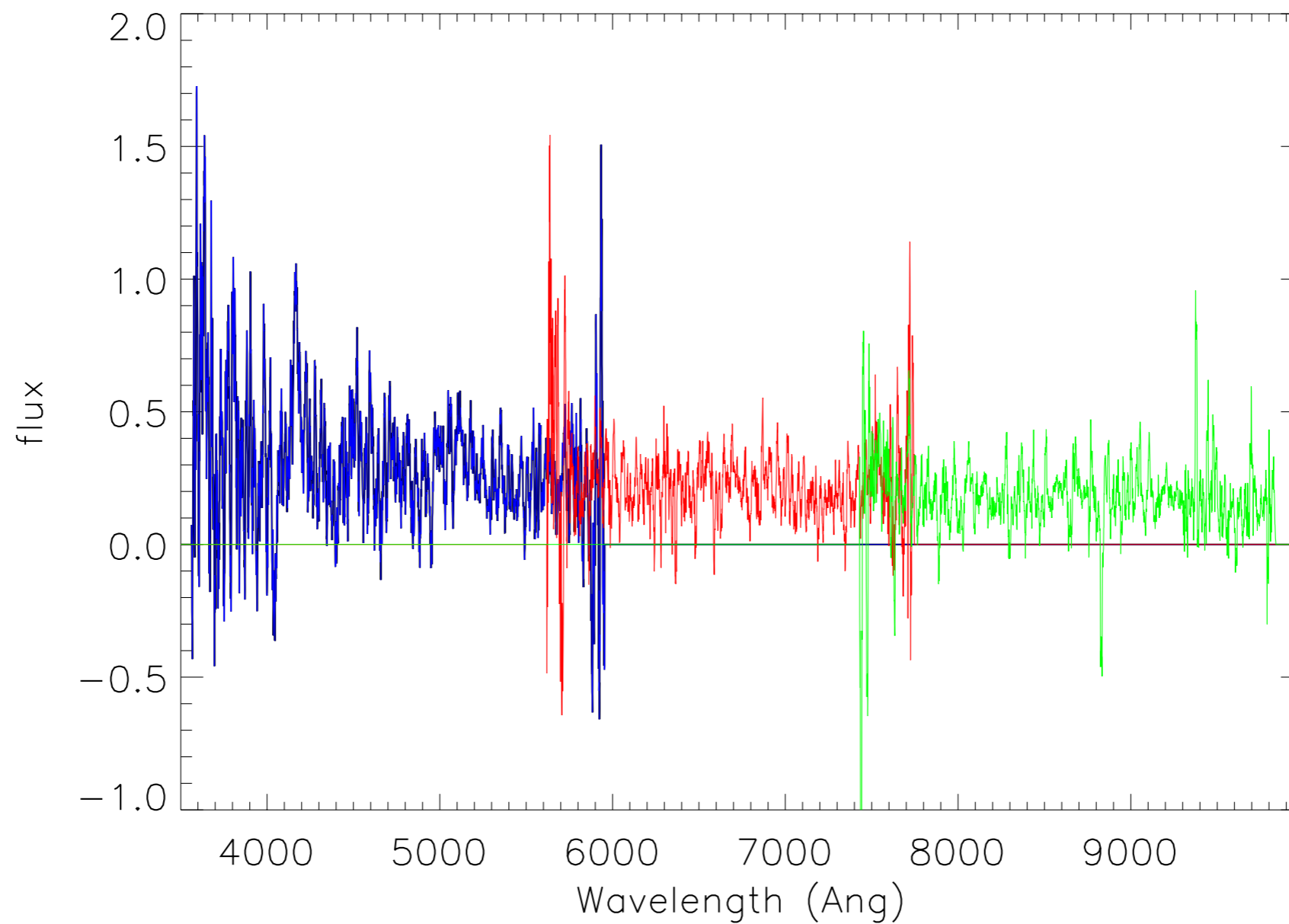


Pop Quiz: Q10



Pop Quiz: I10

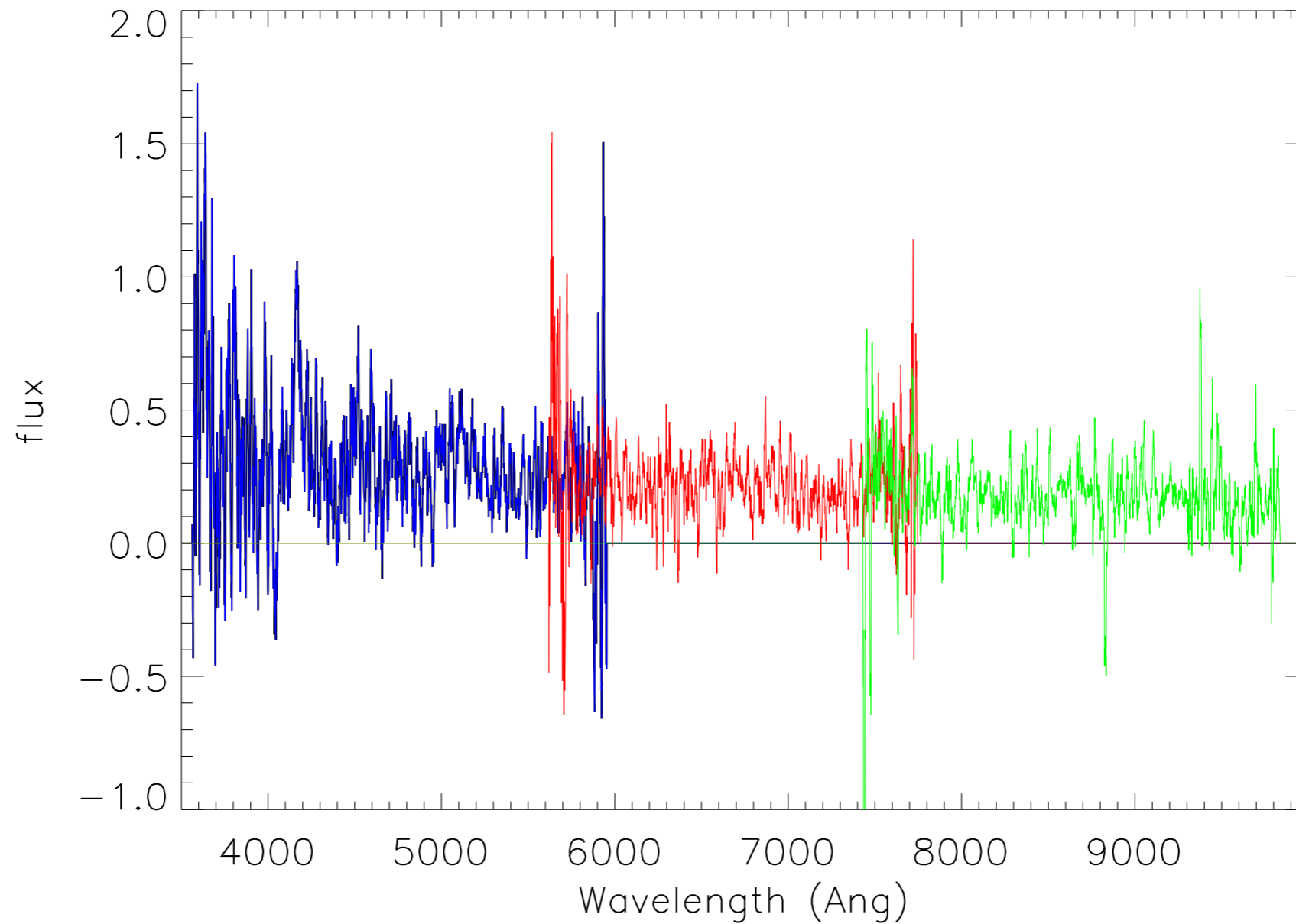
Isabelle: 1.68



Pop Quiz:A10

Isabelle: 1.68

Answer: 1.69



The Results

Spectrum #	Ztrue	Zlsa
1	2.81000	2.83
2	2.56100	2.57
3	2.34200	2.34
4	2.02826	2.04
5	2.82300	2.83
6	2.96200	2.97
7	2.30700	2.32
8	1.93616	1.93
9	2.26800	2.27
10	1.68996	1.68

$$\Delta z \sim 0.01$$

\Rightarrow

$$\Delta v \sim 1000 \text{ km/s}$$

- Quick and dirty z estimate
- True data has more pitfalls
- Emission lines underestimated
- Templates to be improved
- Redmonster development to come