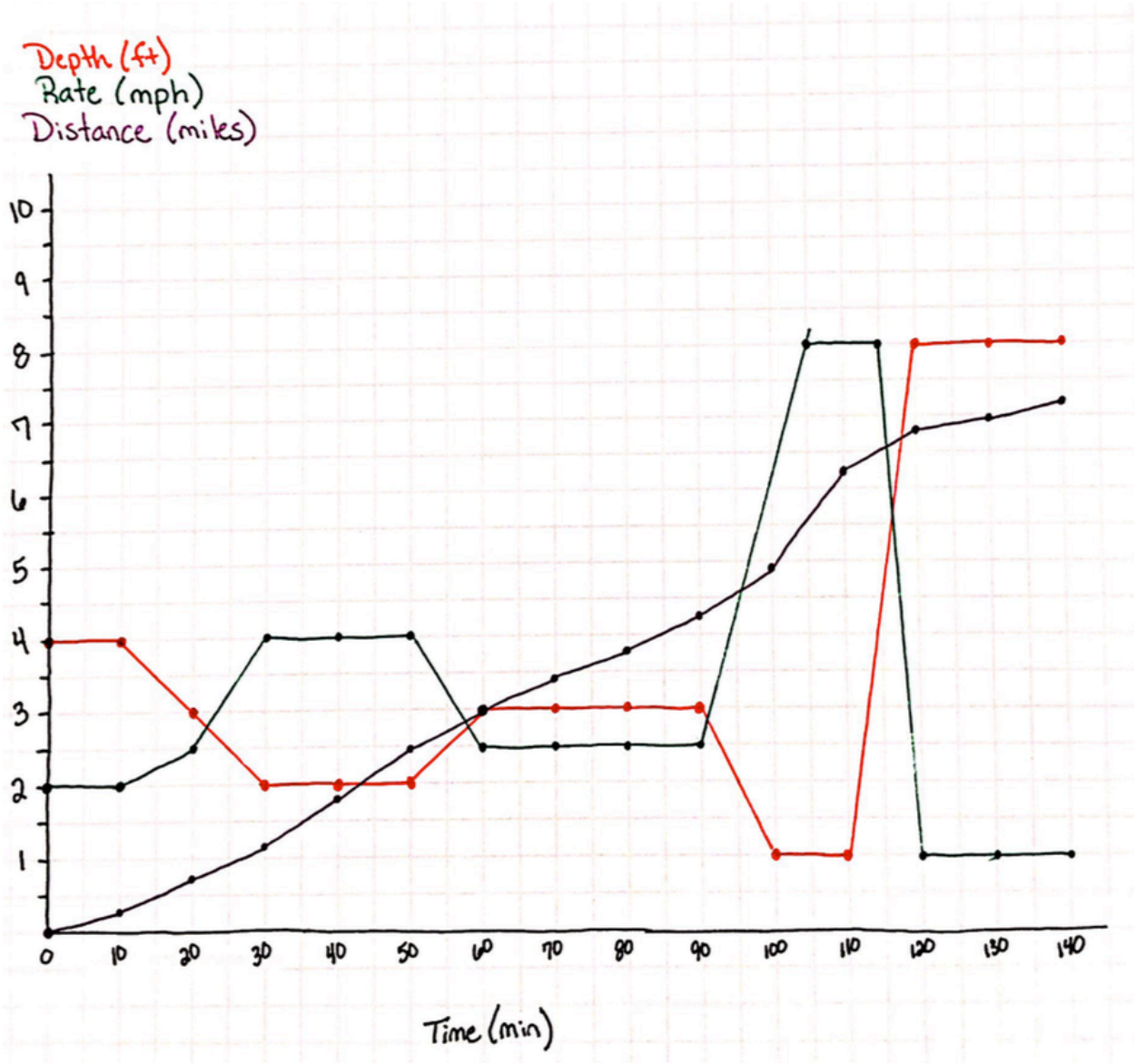
Student 1-


Depth (ft)
Rate (mph)
Distance (miles)
10
9
8
7
6
5
4
3
2
1
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Time (min)

Student 2-

Distance: The three friends started at (0,0) which means that at the start of the trip they traveled 0 miles. At the end of the trip (140, 7.17) they traveled 7.17 miles.

They had an avg. speed of 3.073 mph. $m = \frac{7.17-0}{140-0} = \frac{7.17}{140} \approx .051$ miles per minute

140 minutes = 2hrs 20minutes

2 1/3 hours

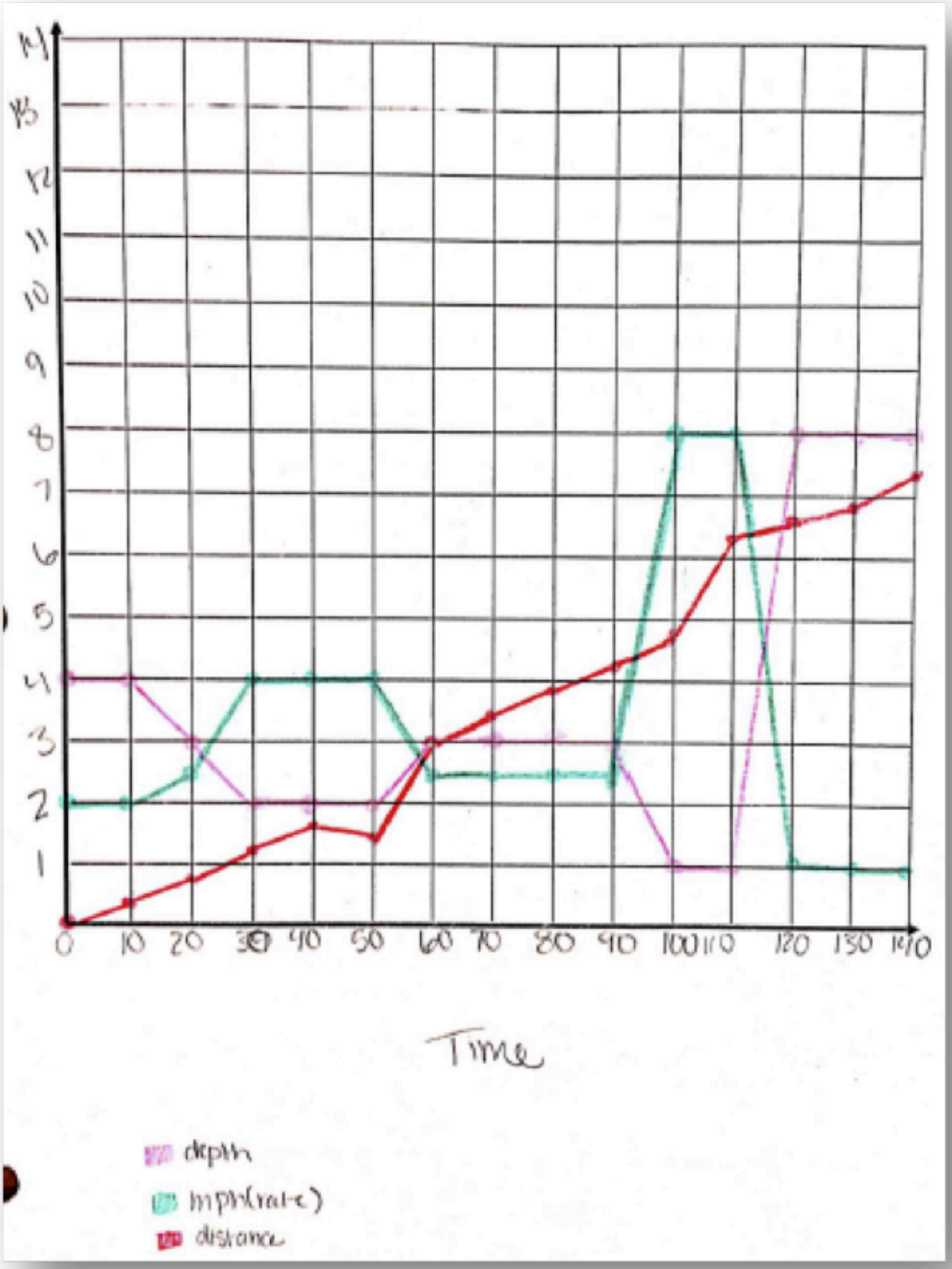
$m = \frac{7.17 \text{ miles}}{2.\overline{3} \text{ hours}} = 3.073$ mph

Rate: As the friends went down the river, their speed changed sometimes they went slow (1 mph at time 120-140 minutes) and sometimes they went fast (8 mph at time 100 to 110 minutes).

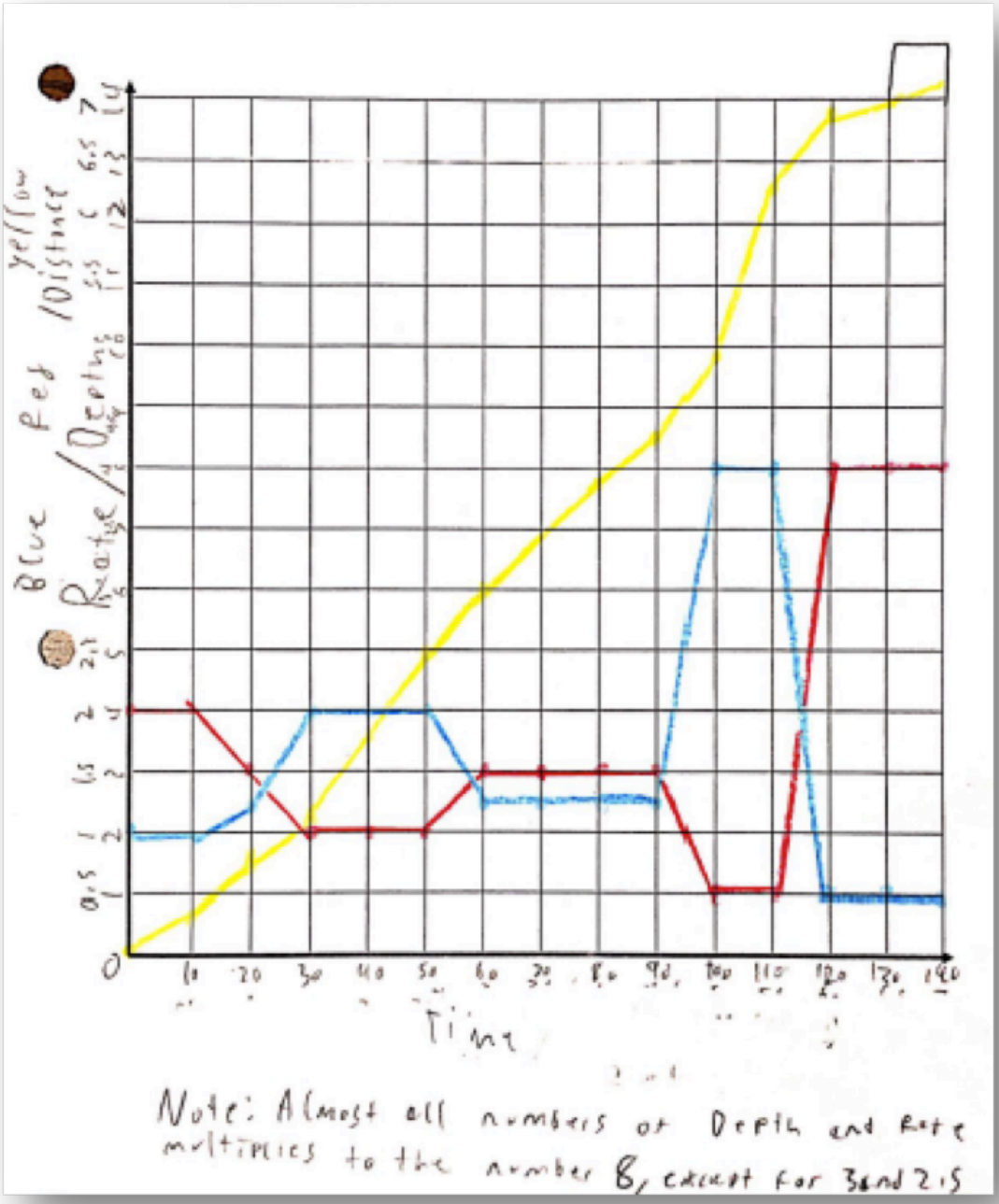
Depth: The depth of the river changed from 1 to 8 feet deep.

We agree that when the depth is shallow the speed is fast.

Student 3-


14
13
12
11
10
9
8
7
6
5
4
3
2
1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
Time
depth
impr(rate)
distance

Student 4-


Blue Rate / Depth
Red
yellow Distance
Time
Note: Almost all numbers of Depth and Rate multiples to the number 8, except for 3 and 2.5

Student 5-

1. When were they traveling at 3 mph? How do you know?

Between 20 and 30 minutes, 50 and 60 minutes, 90 and 100 minutes, and 110 and 120 minutes. I looked at the table for numbers on both sides of 3 mph.

2. When would be a good time to take a swim to cool off?

3. How deep do you think the water is when they are moving 5 mph? Why?

4. During the first hour of their trip, what was the average speed? The average depth of the water?

They traveled 3 miles, so 3mph.

Avg. Depth: $\frac{4+4+3+2+2+2+3}{7} \approx 2.857$ ft.

5. Why is the rate of change of the depth of the river constant between 10 and 30 minutes but the speed increases at an increasing rate?

There might be rapids

6. If the depth of the water was 6 inches, how fast would they be traveling? Does that make sense? What might be happening?

Faster than 8mph. If the water was 6 inches they might be stuck on the bottom of the river.

7. Is speed a function of time? What would it mean if it were not a function? Is depth a function of time? Distance a function of time?

No, there are multiple times that have the rate.

(30, 4) + (50, 4)
min mph min mph

(100, 8) (110, 8)