Comparing Rates in Tables, Graphs, and Equations

Cycling with Jose, Maria, and Sheldon Notes

More: Comparing RATES!

Jose, Maria, and Sheldon went on a weeklong cycling trip. The table below gives the distance each person traveled for the first three hours of the trip. The table shows only the time when the riders were actually biking, not when they stopped to rest, eat, and so on.

* measured - continuous - connect

Cycling Time (hours)	Distance (miles)		
	Jose	Maria	Sheldon
0	0	0	0
1	5	7	9
2	10	14	18
3	15 (+5)	21 (+7)	27 (+9)
4	20	28	36
5	25	35	45
6	30	42	54
7	35	49	63
8	40	56	72
9	45	63	81
10	50	70	90

1) a. Complete the table.

b. How fast did each person travel in miles per hour?

(distance) * d = rate · time or d = rt

Jose: r = 5 mi/hr Maria: r = 7 mi/hr Sheldon: r = 9 mi/hr

Explain how you got your answers: The travel rate for each biker was taken from the pattern in the table

d = rt

c. Assume that each person continued at this rate. Find the distance each person traveled in 7 hours.

Jose: d = 35 mi Maria: d = 49 mi Sheldon: d = 63 mi

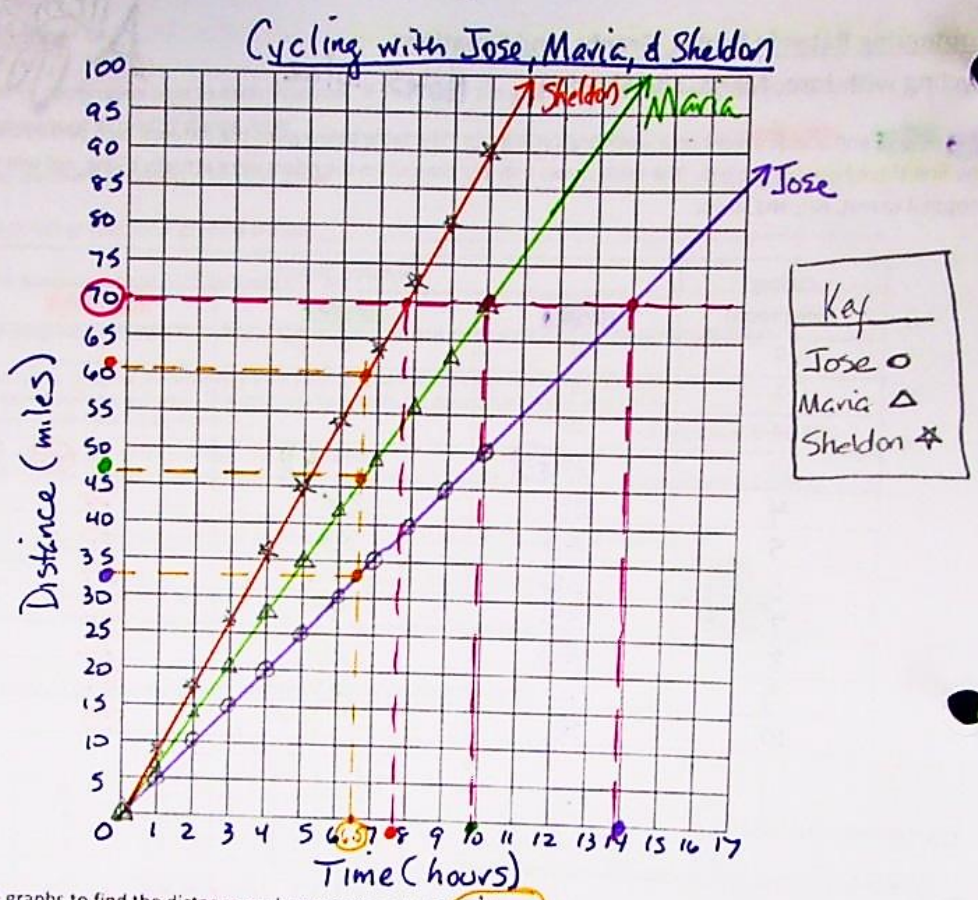
d. Assume that each person continued at this rate. Find the distance each person traveled in 12 hours. t = 12

Jose: d = 60 mi Maria: d = 84 mi Sheldon: d = 108 mi

d = rt

d = rt (5)(12) d = rt (7)(12) d = rt (9)(12)

2) a. On the next page, graph the time and distance data for the three riders on the same coordinate grid. Make a key to distinguish each person's data. Use an interval of 1 on the x-axis and 5 on the y-axis. Your graph should include a title and a label for each axis.



2) b. Use the graphs to find the distance each person travelled in $6\frac{1}{2}$ hours. Show how you got your answers using dashed lines.

Jose: ≈33 mi Maria: ≈46 mi Sheldon: ≈61 mi

c. Use the graphs to find the time it took each person to travel 70 miles. Show how you got your answers using dashed lines.

Jose: ≈14 hrs Maria: ≈10 hrs Sheldon: $7\frac{3}{4}$ hrs

d. How does the rate at which each person rides affect the graphs? The faster the rate, the steeper the line. Sheldon's rate was highest, so his line was steepest.

Sheldon $\frac{9\text{ mi}}{1\text{ hr}}$ Maria $\frac{7\text{ mi}}{1\text{ hr}}$ Jose $\frac{5\text{ mi}}{1\text{ hr}}$