Bike Tours

Jackie has started a bike club. To increase membership Jackie plans a leisurely bike tour (including lunch) for those interested in joining. The tour begins and ends at their school. The graph at the right represents Jackie’s travel around the route.



**Interpreting the Graph**

1. What was Jackie’s average speed

(miles per hour) for the first hour?

1. During what time interval is Jackie

going the fastest? When is she

going the slowest?

1. When was lunch? How long was lunch?
2. What is the furthest Jackie gets from school?
3. What time does the group end the tour?
4. What is the first time that Jackie is ten miles from school?
5. How many total miles did Jackie travel?
6. During what time interval(s) was Jackie’s distance more than 15 miles from school?

**Writing a Piecewise Function**

Let $f(t)$ represent Jackie’s distance from the school (measured in miles) at time *t* (measured in hours since 9 a.m.).

1. Write a rule for $f(t)$.

$$f\left(t\right)= \left\{\begin{array}{c}\genfrac{}{}{0pt}{}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}\\\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\\genfrac{}{}{0pt}{}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}\end{array}\right.$$

1. On what intervals is the slope of the line segment positive? What does this mean in the context of the bike trip?
2. On what intervals is the slope of the line segment negative? What does this mean in the context of the bike trip?
3. Find $f(1.25)$. In other words, find the distance that Jackie is from school at 10:15 a.m. (10:15 a.m. is 1.25 hours after 9 a.m.)

**Using a Piecewise Function**

The week after their first trip, the bike club decided on another outing. They started at 9 a.m. and did not take a break from lunch. They started at the school and returned to the school at 1 p.m.



1. What was their average speed (mph) for the first hour?
2. What was the average speed for the next hour?
3. What was the farthest the bikers got from school?
4. What time did the group end the tour?
5. What is the first time that they were ten miles from school?
6. How many total miles did the group travel?
7. During what time interval were they going the fastest? When were they going the slowest?
8. Did the group ever return to the school before the end of the trip?

**Writing a Piecewise Function**

Let $f(t)$ represent the distance that the bike club is from school (measured in miles) at time *t* (measured in hours since 9 a.m.).

21. Write a rule for $f(t)$.

$$f\left(t\right)=\left\{\begin{array}{c}\genfrac{}{}{0pt}{}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}\\\genfrac{}{}{0pt}{}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_when\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_}\end{array}\right.$$

# Applying a Piecewise Function

1. Use the piecewise function to determine exactly how far from school the bike club was after 3.25 hours? (12:15 p.m. is 3.25 hours after 9 a.m.)
2. Use the piecewise function to determine exactly how far from school the bike club was at 9:45 a.m.? (9:45 is 0.75 hours after 9 a.m.)