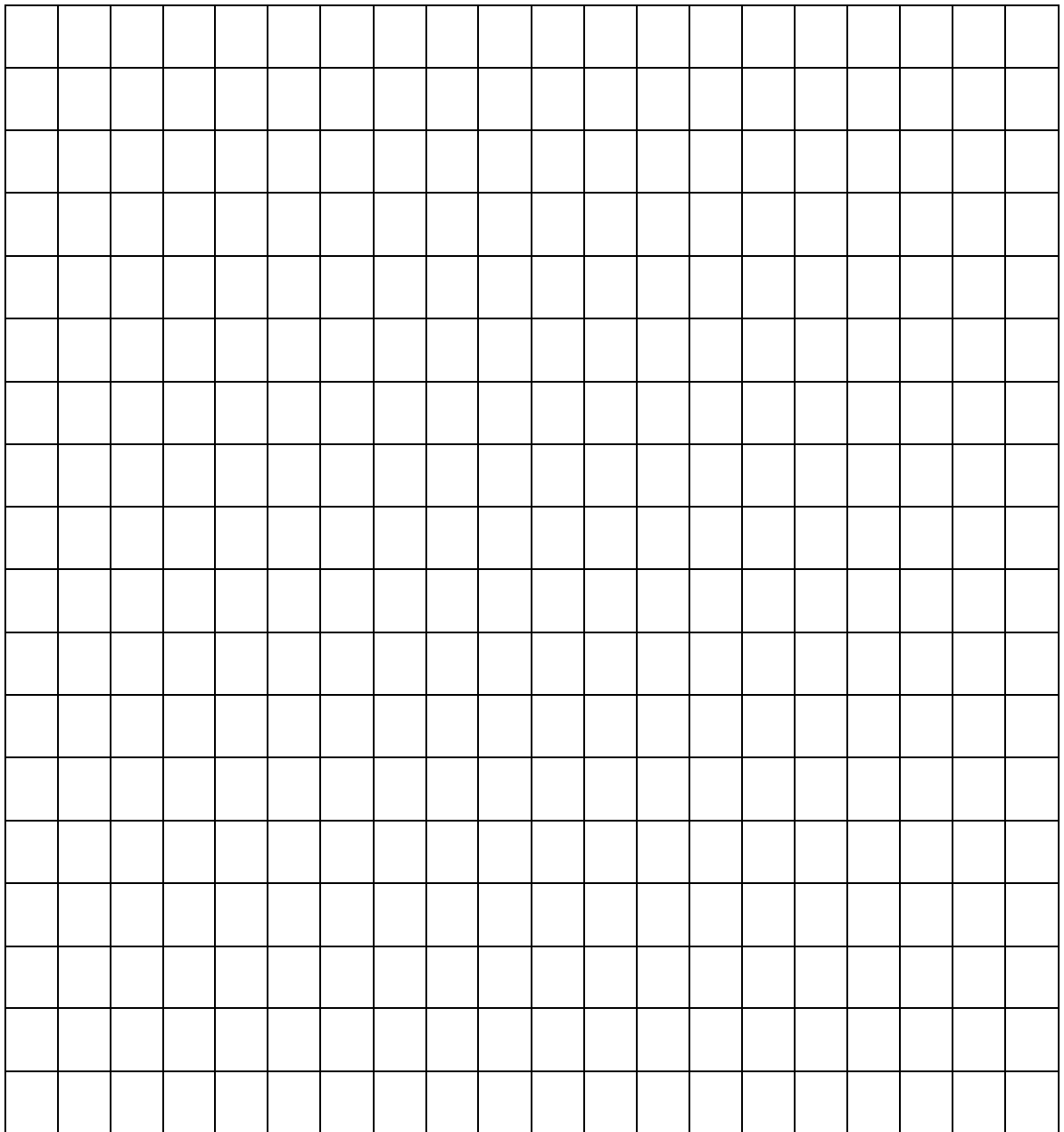


## Practice Problems for Investigation 3 Part 2

Three friends rode their bicycles down the street. They decided to find out how fast each person was riding. The data collected is shown in the table below.

<b>Bicycle</b>	<b><math>t_{av}</math> (s)</b>	<b>d (m)</b>
Dominique	50	100
Mallory	80	150
Kevin	110	170

1. Calculate the average speed of each bicycle using the speed equation.
2. List the average speeds of each bicycle from fastest to slowest.
  - a)
  - b)
  - c)
3. Find out the distance of each bicycle after 3 minutes using the calculated average speeds. Use the speed equation and rearrange the equation to solve for distance.
4. Make a speed graph of each bicycle using distance on the y-axis and the time on the x-axis.




### Comparing Speeds



Above is a graph of dog and cat speeds given distance versus time. The graph can be used to compare the speeds of the dog and cat.

1. Using the graph, calculate the speeds of the dog and cat at 30 minutes.

2. Who has the faster speed? Use the evidence from the graph to support your claim.

### Practice Problems for Investigation 3 Part 2 Answers

Three friends rode their bicycles down the street. They decided to find out how fast each person was riding. The data collected is shown in the table below.

<b>Bicycle</b>	<b><math>t_{av}</math> (s)</b>	<b>d (m)</b>
Dominique	50	100
Mallory	80	150

Kevin	110	170
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1 Calculate the average speed of each bicycle using the speed equation.

$$V = d / t_{av}$$

$$\text{Dominique } v = 100/50 = 2 \text{ m/s}$$

$$\text{Mallory } v = 150/80 = 1.875 \text{ m/s}$$

$$\text{Kevin } v = 170/110 = 1.545 \text{ m/s}$$

2 List the average speeds of each bicycle from fastest to slowest.

a) Dominique

b) Mallory

c) Kevin

3 Find out the distance of each bicycle after 3 minutes using the calculated average speeds. Use the speed equation and rearrange the equation to solve for distance.

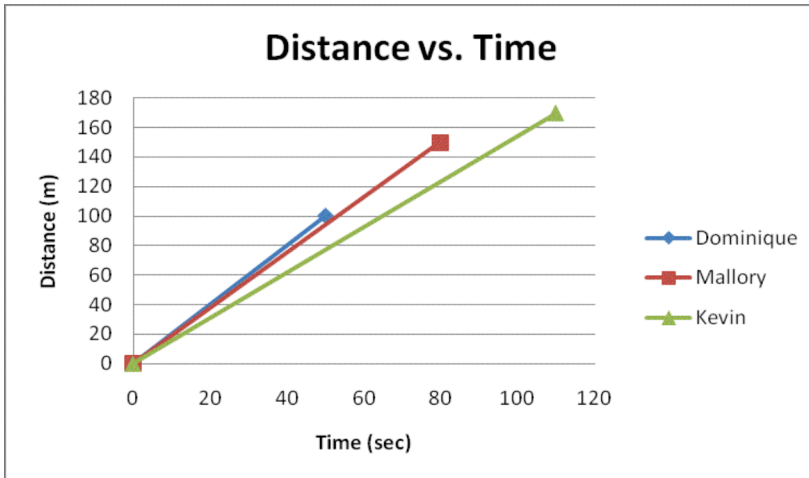
$$t_{av} = 3 \text{ min} = 180 \text{ sec}$$

$$\text{Dominique } d = v \times t_{av} = 2 \times 180 = 360 \text{ m}$$

$$\text{Mallory } d = 1.875 \times 180 = 337.5 \text{ m}$$

$$\text{Kevin } d = 1.545 \times 180 = 278.1 \text{ m}$$

4 Make a speed graph of each bicycle using distance on the y-axis and the time on the x-axis.



### Comparing Speeds



Above is a graph of dog and cat speeds given distance versus time. The graph can be used to compare the speeds of the dog and cat.

1 Using the graph, calculate the speeds of the dog and cat at 30 minutes.

$$\text{Dog } v = 30 \text{ km}/30 \text{ min} = 1 \text{ km/min}$$

$$\text{Cat } v = 36 \text{ km}/30 \text{ min} = 1.2 \text{ km/min}$$

2 Who has the faster speed? Use the evidence from the graph to support your claim.

The cat has the faster speed, because the graph shows that the cat has a steeper slope than the dog. Also, when one analyzes a corresponding time and distance coordinate, the cat will have a faster speed. The answer in problem one is an example of one point that can be used to show the speed of the dog and cat.