One hour later, at Best Elementary School...

Claire and Dillon, please come to the Principal’s office.

Guys, I need your help.

We were hoping you might give us a buzz about this Cheetah character!

Oooooo...

This guy seems to be unstoppable. I just can’t react fast enough to catch him. I thought that if we could figure out where he will strike next, perhaps I could be close enough to the scene of the crime to actually stop him. Maybe you guys can spot a pattern, or work some of that mathematical magic that you are so good at. I have a map, showing all of his robberies.

They’re numbered by the order they occurred.
Well, it certainly seems like he is making a conscious effort to spread it around. Only one robbery a day?

That seems like enough to me.

No, I mean that it sounds like he has to rest between bursts of speed, just like a real cheetah.

We read about cheetahs last week in science class. They’re sprinters that can run up to 70 mph, but then they have to rest for a while to recover.

That gives me an idea. What if we find the center of these points, using the mean of the coordinates? That would give us an idea of the location of his "den".

Let’s convert all of these points into x- and y-coordinates.

Not all points are at grid intersections, so we will have to approximate some of the coordinates.
Then to find the x-coordinate of the center point, we find the average of all of the x-coordinates.

\[
\begin{align*}
\text{x-coordinate:} & \quad \frac{3 + 8.5 + 4 + 10 + 6.5 + 5 + 4 + 6 + 9 + 9}{10} \\
& = \frac{65}{10} = 6.5 \\
\text{midpoint} &= (6.5, ?)
\end{align*}
\]

And then we just do the same thing with all of the y-coordinates.

\[
\begin{align*}
\text{y-coordinate:} & \quad \frac{7 + 5.5 + 2.5 + 8 + 4 + 8 + 5 + 1 + 2.5 + 6.5}{10} \\
& = \frac{50}{10} = 5 \\
\text{midpoint} &= (6.5, 5)
\end{align*}
\]