

Re: On The Measurement Of Speed

Source: <http://sci.tech--archive.net/Archive/sci.physics.relativity/2006-05/msg02566.html>

- *From:* The Ghost In The Machine <ewill3@xxxxxxxxxxxxxx>
 - *Date:* Mon, 29 May 2006 22:00:19 GMT
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On Mon, 29 May 2006 18:53:56 +0000, Dirk Van de moortel wrote:

"The Sorcerer" <Headmaster@xxxxxxxxxxxxxx> wrote in message [news:s0Beg.236516\\$xt.202573@xxxxxxxxxxxxxx](mailto:news:s0Beg.236516$xt.202573@xxxxxxxxxxxxxx)

"The Ghost In The Machine" <ewill3@xxxxxxxxxxxxxx> wrote in message news:pan.2006.05.29.02.25.09.944710@xxxxxxxxxxxxxx

| On Mon, 29 May 2006 00:14:10 +0000, The Sorcerer wrote:

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|>

|> "The Ghost In The Machine" <ewill3@xxxxxxxxxxxxxx> wrote in message

|> news:pan.2006.05.28.21.50.52.356417@xxxxxxxxxxxxxx

|> | Herewith several problems for the assemblage — you know who you are.

|> |

|> | [1] I travel from Atlanta to Boston, then back to Atlanta. Assuming 2200

|> | miles total [*] and 44 hours driving time (not counting stops for lunch

|> | and sleeping), how do I calculate my average speed?

|>

|> Your AVERAGE speed is zero. The calculation is simple.

|

| Ahem.

|

| <http://mathworld.wolfram.com/Speed.html>

| <http://mathworld.wolfram.com/Velocity.html>

Nothing there about average speed.

Ahem what?

Ahem this:

<http://users.telenet.be/vdmoortel/dirk/Physics/Fumbles/AhemWhat.html>

Re: On The Measurement Of Speed

Dirk Vdm

At some point someone might have to compile a translation table for effective communications --- assuming anyone wants to even bother --- with our erstwhile resident extelligensia.

Regrettably, "The Big Golden Book of Atheism" appears to have been lost in the folds of the Web/Internet. It was a somewhat useful (and mostly humorous) set of definitions used by Publius during his existence in talk.atheism and/or alt.atheism; Publius was one of the more notable, erm, extelligents there at one point.

As for "average speed"; that should be simple for even The Sorcerer, though I probably should have clarified it as there are several forms of "average" known in statistics:

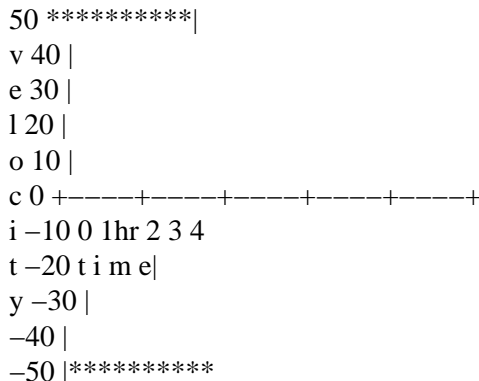
- mean, arithmetic
- mean, geometric
- mode
- median

I was referring to the arithmetic mean, in this case. The arithmetic mean of a sequence is simply the sum of the sequence divided by the number of terms therein. (A sequence, in this context, might be taken as a mapping from the natural numbers to the reals.)

If one has an "infinite" number of measurements, one can define the arithmetic mean as simply the area of the curve divided by the length of the axis underneath it. In this particular case the curve has abscissa time, ordinate instantaneous velocity or instantaneous speed.

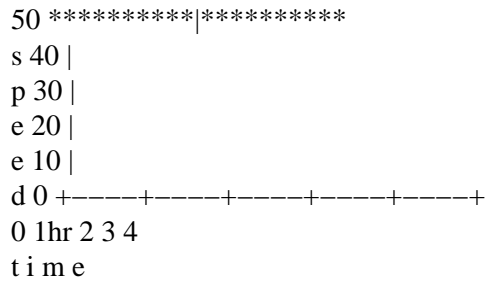
For simplicity's sake I'll assume two cities called "E" and "F", 100 miles apart, a straight stretch of roadway which also serves as the X axis of a somewhat arbitrary coordinate system, and a constant speed of 50 mph, and taking zero time to turn around at F before heading back home.

The graphs, therefore, might look a bit like this:



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Speed, OTOH, looks like this:



As one can plainly see, the average speed in this case is 50 mph. The average velocity is a little harder to see, but for the first two hours it's (+50,0,0) mph, and for the next two it's (-50,0,0). The average for the entire 4 hours is (0,0,0), which for this sort of problem isn't all that meaningful.

The median speed is 0; the mode is a bit of a toss-up.

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#191, ewill3@xxxxxxxxxxxxxx
It's still legal to go .sigless.

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