SPEED NOTES

Speed is a rate that expresses how much **distance** an object covers in a certain period of **time**. The distance and time units depend on the situation.

Speed = Distance
_____
Time

Some examples of speed units might be:

meters/second	m/s
miles/hour	m/h
kilometers/hour	km/h
inches/second	in/sec

*The slash is read as "per"

Ex 1: A cyclist travels 30 kilometers in 1 hour. That cyclist has a speed of 30 km/h.

Ex 2: An ant moves 12 centimeters in 6 seconds. The ant's speed is $\frac{12 \text{ cm}}{6 \text{ sec}}$ = 2 cm/sec

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The speed of most moving objects is not **constant.** For example, when you ride your bike, you might slow down on an uphill, move more quickly down a hill, etc. However, you can calculate your **average** speed as follows:

Average speed = Total distance
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Total time

Ex 1: A cyclist travels 32 kilometers during the first 2 hours. Then the cyclist travels 13 kilometers during the next hour. What is the average speed?

Average speed = $\frac{32\text{km} + 13\text{km}}{2\text{h} + 1\text{h}}$ = $\frac{45\text{km}}{3\text{h}}$

Average speed = 15km/h

Calculate the speed (show your work!):

1. A biker rode 72 miles in 10 hours. What was his average speed?

Distance = 72 mi

$\frac{72}{10}$ = 7.2 mi/h

Time = 10 h

2. A driver in a car covered a distance of 45 kilometers in 45 minutes. What was his average speed?

Distance = 45 km

$\frac{45}{45}$ = 1 km/h

Time = 45 min

3. Kristine walked 10 miles in 5 hours. Calculate her speed.

Distance = 10 mi

$\frac{10}{5}$ = 2 mi/h

Time = 5 h

4. A toy car runs through an 94 meter track that is divided into 4 sections. It passes through the first section in 10 seconds, the second section in 7 seconds, and the third section in 8 seconds. The last section takes 22 seconds for the car to pass. Calculate the car's average speed for the track.

Distance = 94m

$\frac{94}{47}$ = 2m/s

Time = 47 s