11/19/14

$$v = \frac{d}{t}$$

$$\text{SPEED} = \frac{\text{DISTANCE}}{\text{TIME}}$$

$$= \frac{\text{THE TOTAL LENGTH OF THE PATH TRAVELLED}}{\text{THE TIME IT TAKES}}$$

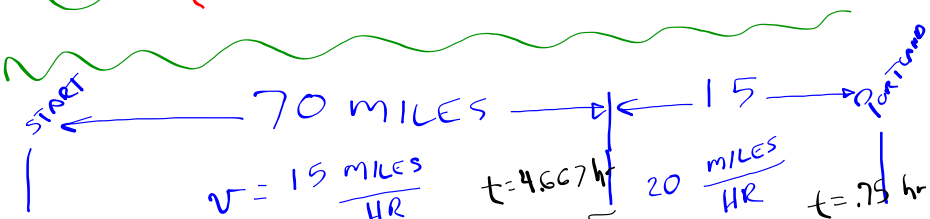
EXAMPLE: A SLUG IS SLUGGING DOWN THE ROAD. THE SLUG TRAVELS 2 METERS AND STOPS TO LET AN EARTH WORM BY. THEN, THE SLUG TURNS LEFT AND MOVES 13 METERS. IF IT TAKES THE SLUG 7,342 SECONDS TO DO ALL THIS, WHAT WAS THE SLUG'S AVERAGE SPEED.

$$\text{SPEED} = \frac{\text{DISTANCE}}{\text{TIME}} = \frac{(2+13)}{7{,}342} = .002043 \frac{m}{s}$$

For #6:

Hint $\frac{70 + 15}{\text{Total Distance}}{\text{Total Time}}$

$v = \frac{d}{t}$




$v = \frac{d}{t}$

$t \times 15 = \frac{70}{t} \times t$

$\frac{15t}{15} = \frac{70}{15}$

$t = \frac{70}{15} = 4.667$ hr

$v = \frac{d}{t}$

$t \times 20 = \frac{15}{t} \times t$

$\frac{20t}{20} = \frac{15}{20}$

$t = \frac{15}{20} = .75$ hr

$\text{Avg. Speed} = \frac{\text{Total Distance}}{\text{Total Time}} = \frac{(70+15)}{(4.667+.75)}$

$= \frac{(85)}{5.417} = 15.69 \frac{\text{miles}}{\text{hr}}$

# Derby racer:

## Design/build

- SolidWorks
- Power tools/ safety
- Reliable construction

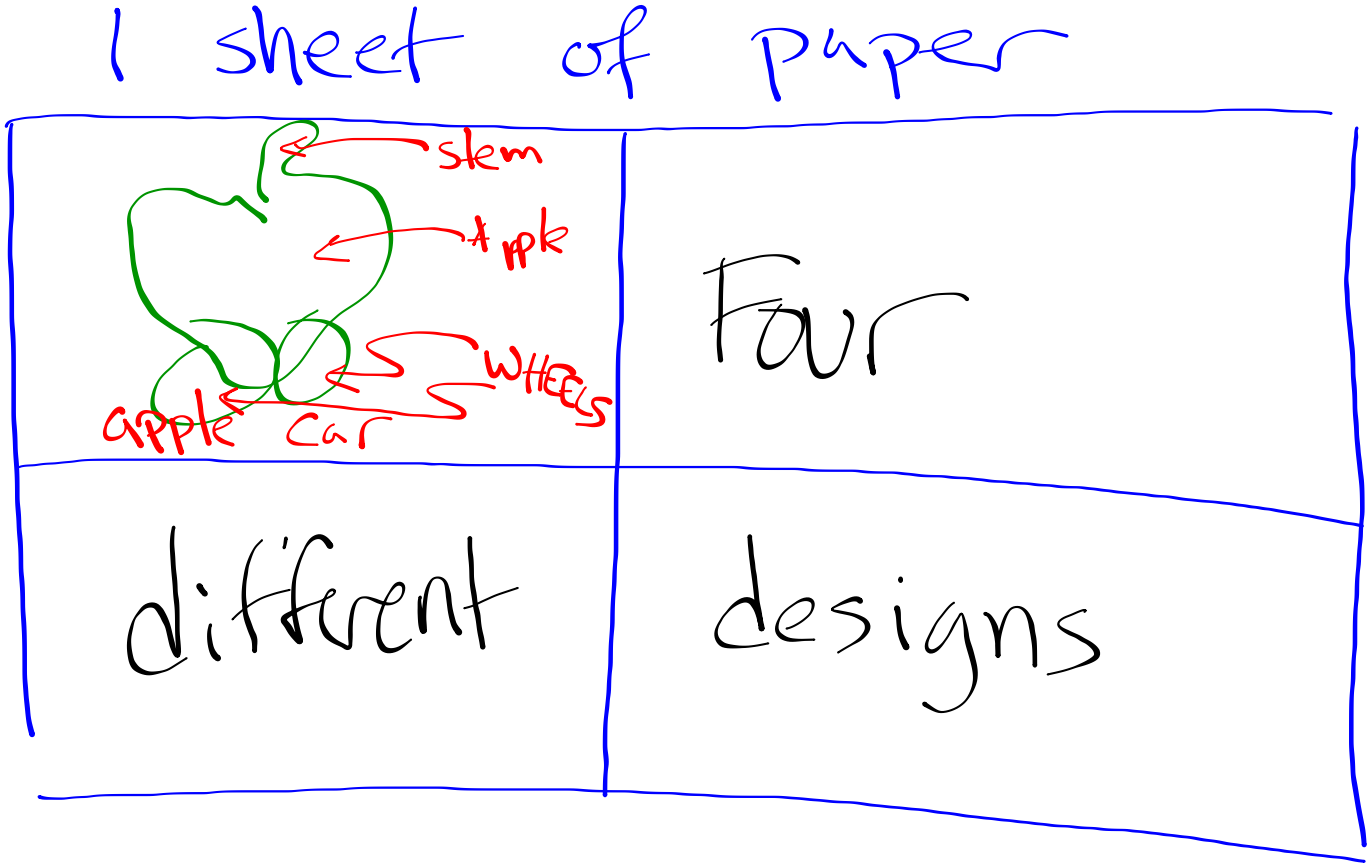
## Concept

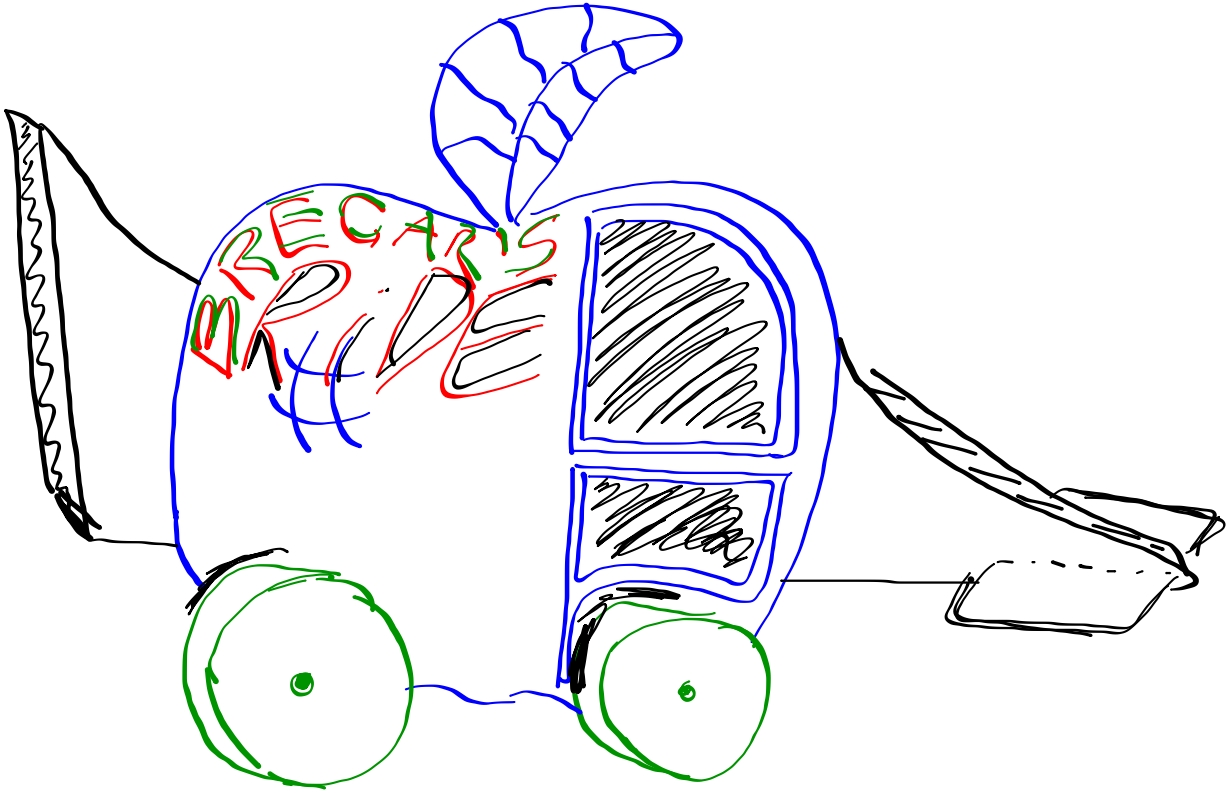
- Distance
- Disp.
- Speed
- Velocity
- Acceleration
- Problem-solving

## Hands-on

Measure & calculate & analyze the motion of your derby racer

1 sheet of paper




RECARS
RIDE