

# Do Now

- Draw the position-time graph for the following problem.
- Two cars are playing chicken. When they are two 150m apart, one car moves at 7m/s. The other moves at 12m/s. How much time will it take for them to meet? Where to they meet?

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$$7x = 150 - 12x$$

$$3_{m/s} V_t = -V_t + 150 \Rightarrow V = \frac{\Delta x}{t}$$

$$7m/s \cdot t = -12m/s \cdot t + 150m \Rightarrow \frac{19m/s}{19m/s} t = \frac{150m}{19m/s}$$

$$t = 7.89s$$

# Today

- Buggy-Buggy Lab
- Complex constant velocity problems.
- Graphing them.

Tonight:

Online Worksheet.

[http://dev.physicslab.org/Document.aspx?doctype=5&filename=Kinematics\\_ConstantVelocityPositionTimeGraphs3.xml](http://dev.physicslab.org/Document.aspx?doctype=5&filename=Kinematics_ConstantVelocityPositionTimeGraphs3.xml)



# This Week

- M: Buggy and constant velocity
- T: Velocity-time graphs and first kinematic equation
- W: Review for Quiz
- R: Quiz
- F: Sleep in

# Quiz Topics

- Unit Conversion
- Position-time graphs
- Constant velocity problems
- Velocity-time graphs
- $V_f = V_i + at$

# Buggy-Buggy

- Each lab table needs the following:
- 2 buggies of different colors
- Meter stick
- Stop watch (phone is fine)
- 1 data sheet per group (of four)

# Data Sheet

- One per group.
- Put all names on it.
- All descriptions in full sentences.
- All calculations have all work.
- Remember units.



# Buggy-Buggy

- You have 10 minutes to determine the velocity of the two buggies.
- I will give you a distance that we will set them apart. You will have to predict where they will meet.

# Post Lab

- Finish the data sheet and hand in.
- On a whiteboard: draw the accurate position-time graph.
- Make sure that the numbers represent your calculations and measurements.

# Cops and Robbers

- On your whiteboard, draw the position time graph for the following problem.
- Batman is 50m from joker. If joker runs at 6.2m/s and batman runs at 7m/s, how long will it take batman to catch the joker?

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- Yevgeny needs to run a mile (1600m) in 10 minutes in order to pass gym class. The track is 400m around. He runs his first 3 laps at 5m/s, 3.5m/s and 7m/s. What is the maximum time that Yevgeny can run the last lap? Use a position time graph to solve the problem.

~350s

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Use a position time graph to solve the problem.