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In this sample you'll find a portion of the PBL you're interested in.

What you won't find is the:

- complete instruction set
- the answer key
- important things to look for in student responses
- teacher tips and tricks

If you have any questions, please send me an email – devon@teachwithfergy.com

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Name: _____ Date: _____

Banking on Physics - Banked Curves

Materials:
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Background: In the trial of the century, an unnamed driver from Howell, NJ is suing New Jersey's Division of Highway Traffic Safety for not properly constructing exit ramps on the Garden State Parkway. The plaintiff (the driver) got into an accident while exiting the highway on one of the banked off-ramps and claims that he was going the speed limit and following all safety laws at the time of the accident. Therefore, **THIS SECTION OF TEXT HAS BEEN REMOVED FROM THIS PREVIEW**

Problem: Both the plaintiff's and the defendant's team of attorneys has approached your science and engineering firm asking you to be expert witnesses in the case because of your unbiased viewpoint and knowledge of the physics behind banked curves. Your firm **THIS SECTION OF TEXT HAS BEEN REMOVED FROM THIS PREVIEW**

Data: In order to assure fairness, the only information you have been given about the case is that the plaintiff claims he was travelling the posted speed limit of 55 km/hr at the time of the crash, the roads were **THIS SECTION OF TEXT HAS BEEN REMOVED FROM THIS PREVIEW**

Questions:

1. What is the best way to decide who is at fault in this case?

2. Who was at fault? Make sure you show all calculations.

Practice Problems

1) A curve has a radius of 50 meters and a banking angle of 15^{o}. What is the ideal, or critical, speed (the speed for which no friction is required between the car's tires and the surface) for a car on this curve?
2) A turn of radius 100 m is being designed for a speed of **THIS SECTION OF TEXT HAS BEEN REMOVED FROM THIS PREVIEW**
3) Talladega Motor Speedway in Alabama has turns with radius 335.3 m. that are banked at **THIS SECTION OF TEXT HAS BEEN REMOVED FROM THIS PREVIEW**