

PHY100 — Recitation #1

1) During the 2008 election, a major news organization made the following claim

Home » Opinion » CBS News Polls

Poll: McCain Takes Post-Convention Lead

Republican Nominee Leads Obama For First Time In New CBS News Poll; Running Mate Sarah Palin A Factor

Sept. 8, 2008

Comments 2485

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VIDEOS

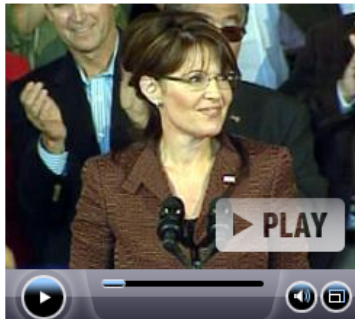
PHOTOS

Double-click any word (What's this?)

(CBS) Republican presidential nominee **John McCain** leads Democratic rival **Barack Obama** 46 percent to 44 percent in the latest **CBS News** poll, which was taken in the three days following the completion of the parties' nominating conventions.

The poll marks the first time that McCain, whose two-point lead is within the poll's margin of error, has led Obama in CBS News general election polling.

Obama led McCain by three points in a CBS News/New York Times **survey** released on August 20th, just before the political conventions, and led by 8 points in **CBS News polling** just after the Democratic National Convention. A CBS News **survey** conducted last week found the two candidates tied.



based on this poll data:

BEFORE AND AFTER BOTH CONVENTIONS: VOTE FOR PRESIDENT

	NOW	8/20/08 (Before Conventions)
McCain	46%	42%
Obama	44	45
Undecided	9	10

poll. The error due to sampling for results based on the entire sample and registered voters could be plus or minus four percentage points.

What do you make of that headline?

2) What could lead to scientific controversy?

3) Can you think of instances where the outcome of a scientific controversy might affect your life?

4) You are driving across town to visit a friend and you get frustrated by the stop-and-go traffic. You travel 12 kilometers in 30 minutes.

What is your “average speed” for the trip?

How does your average speed compare to your instantaneous speed at different points in this trip?

5) Late at night, is it possible to drive your car around the InnerLoop at constant speed?

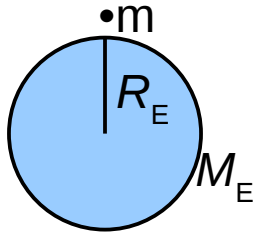
Is it possible to drive your car around the InnerLoop at constant velocity?

6) Biff Johnson drives his sports car along a straight, level road at a constant speed. What is Biff's acceleration?

7) If Biff increases his speed from 10 m/s to 20 m/s in 100 seconds, what is Biff's acceleration? (m/s = meters per second)

8) If Biff decreases his speed from 20 m/s to 10 m/s in 100 seconds, what is Biff's acceleration?

9) Newton's law of gravitation: $F = G \frac{M_E m}{R_E^2} = gm$



$$g = G \frac{M_E}{R_E^2}$$

$$G = 6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$$

$$M_E = 5.97 \times 10^{24} \text{ kg}$$

$$R_E = 6.38 \times 10^6 \text{ m}$$

g is a constant with units of m/s^2 . It is the acceleration towards the center of the Earth experienced by any object at its surface.

In the next page you will find a photograph of a ball falling near the surface of the Earth. The photograph is done with a flash that fires every $1/30$ second, such that images of the ball are recorded on the same frame every $1/30$ s as the ball falls.

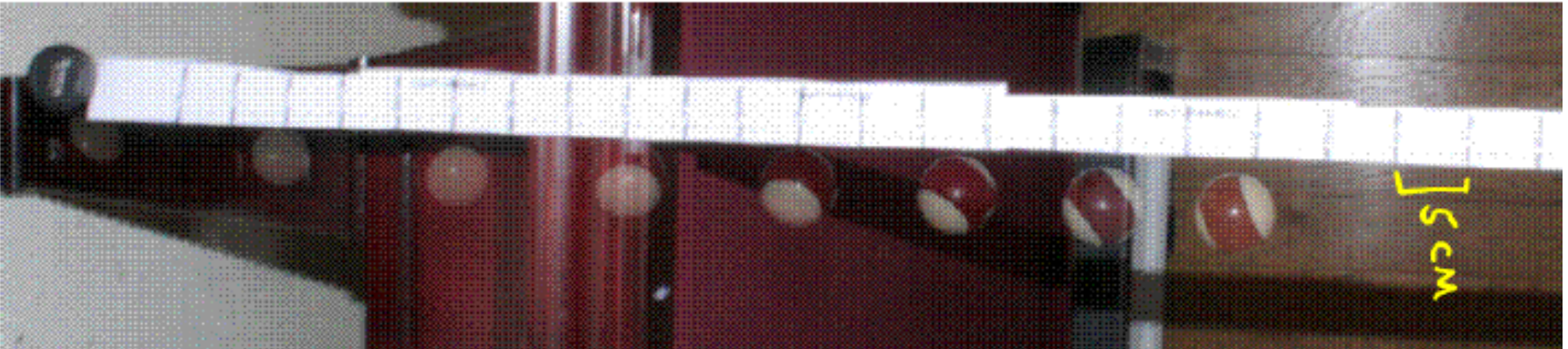
Discuss how you might use this photograph to measure g

Measure g using the photograph

Can you estimate how good is this measurement?

Estimate the uncertainty in your measurement

How does your value compare to the textbook value of $g = 9.8 \text{ m/s}^2$?



Flash strobe at 30 Hz
(1 flash every 1/30 s)
5 cm spacing between dark lines