

## Math Mistakes that Make the News

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### The Gimli Glider

A simple math problem involving a conversion from Kg to Liters and a subtraction.

- July 23, 1984  
Air Canada Flight #143,  
Boeing 767  
Montreal → Ottawa →  
Edmonton
- Captain Bob Pearson  
First Officer Maurice Quintal
- Fuel Gauge didn't work



- Need 22,300 kg of fuel;  
currently had 7682 liters
- $(22,300 \text{ kg}) \div (1.77 \text{ kg/liters}) \approx 12,598 \text{ liters}$
- Added 4916 liters  
(12,598 – 7682)



As shown on this map, the plane ran out of fuel part way across Canada.

A similar problem occurred on the Mars Climate Orbiter (1998-99):



NASA used metric units (kilograms, kilometers, etc.)

Subcontractor Lockheed Martin used Imperial units (pounds, miles, etc.)

## Flood Control in New Orleans



Photo by Jocelyn Augustino/FEMA

- Hurricane Katrina hit New Orleans August 29, 2005



- 1,836 known deaths due to the storm
- The Army Corps of Engineers rebuilt Flood gates and pumps afterwards

- June 20, 2007: flood risk map released  
Predicted Reduction of Floodwaters in the Lakewood neighborhood: **5½ feet**

- November 7, 2007: technical report released  
Predicted Reduction: **6 inches**

- Problem: +/- mixup

## Parking Problem

Calculate whether a parking sticker is still valid or has elapsed.

- July 2008: Driver enters parking garage in Devon, England at 2:49pm and pays for 75 minutes.

- Traffic Warden comes by at 3:41pm and calculates

$$341 - 249 = 92$$

- Traffic Warden issues ticket.



## Medical Mistakes

- January 1, 2008 article published in the *Annals of Internal Medicine*
- Collect and inject 0.12 mg of epinephrine
- “1 milligram in 1 milliliter solution”  
(1 mg of epinephrine in 1 mL of solution)

How many milliliters of solution to inject?

- Collect and inject 0.12 mg of epinephrine
- “1 milliliter of a 1:1000 solution”  
(1 part epinephrine in 1000 parts solution)

How many milliliters of solution to inject?

1 milliliter of water [solution] weighs 1g

How did the doctors fare?

**Group 1:**

11 out of 14 doctors correct  
Average time: about 35 seconds

**Group 2:**

2 out of 14 doctors correct  
Average time: 126 seconds

For references for individual stories, see

<http://threesixty360.wordpress.com>  
(category: Math Mistakes)

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