From: susanmcewan@shaw.ca
To: Brian.Leaf@dfo-mpo.gc.ca; jmutch@MIT.EDU; dhillon-wyly@hotmail.com
Subject: Fw: Fantastic Responses
Date: Mon, 1 Feb 2010 15:04:42 -0800

I love the cheque to Verizon....

(d) Explain why phosphorus trichloride (PCl₃) is polar.

God made it that way.

☐ ☐ ☐
2. A 3-kg object is released from rest at a height of 5m on a curved frictionless ramp. At the foot of the ramp is a spring of force constant \( k = 100 \text{ N/m} \). The object slides down the ramp and into the spring, compressing it a distance \( x \) before coming to rest.

(a) Find \( x \).

(b) Does the object continue to move after it comes to rest? If yes, how high will it go up the slope before it comes to rest?

\[
\begin{align*}
U &= 3(9.81)(5) = 147.15 \\
U_s &= \frac{1}{2}(100)x^2 = 50x^2 \quad ???
\end{align*}
\]

\( \text{NO, there is an elephant in the way.} \)

(c) Tracey says

\((\sqrt{2} + \sqrt{8})\) is an irrational number.
\( (\sqrt{2} + \sqrt{8})^2 = 18 \)

I think that if you square an irrational number you always get a rational number.

Tracey is wrong.
Use an example to show that Tracey is wrong.

\( \text{She's a woman} \)
CHECKING IN (Answer on your own and hand in to your instructor)

The water of the earth’s oceans stores lots of heat. An engineer designed an ocean liner that would extract heat from the ocean’s waters at $T_h = 10^\circ C$ (283 K) and reject heat to the atmosphere at $T_i = 20^\circ C$ (293 K). He thought he had a good idea, but his boss fired him. Explain.

Because he slept with his boss' wife. — Jethro...

Oh, dear!

(b) Sea salt is commercially obtained from sea water by the process of evaporation and crystallization. The main component of sea salt is sodium chloride.

What type of attractive force or bond holds the sodium ions and chloride ions together in a crystal of sodium chloride?

James Bond
1. Briefly explain what hard water is.

2. Note that calcium is one of the solids dissolved in ocean water. Describe two ways by which calcium ends up in a drinking water source.
3. Find $x$.

Here it is.

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