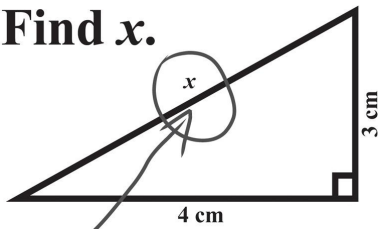


Problem of the Week

Number Eight

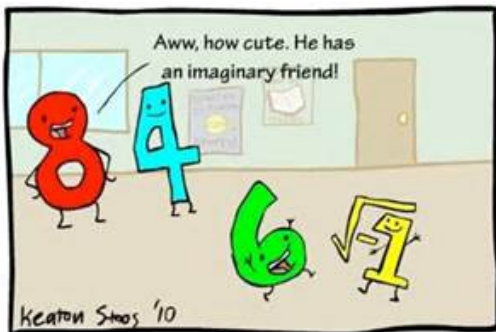
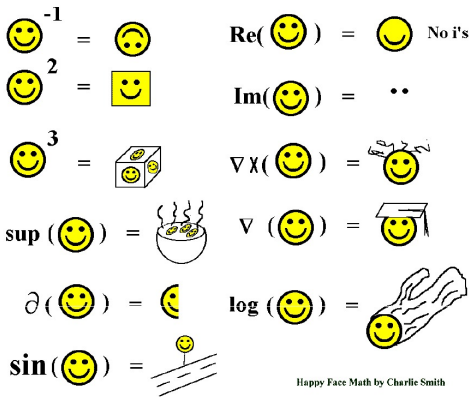
March 28, 2016

Find x .



Here it is

Happy Face Math



$$\begin{bmatrix} \cos 90^\circ & \sin 90^\circ \\ -\sin 90^\circ & \cos 90^\circ \end{bmatrix} \begin{bmatrix} a_1 \\ a_2 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

After explaining to a student through various lessons and examples that:

$$\lim_{x \rightarrow 8} \frac{1}{x-8} = \infty$$

I tried to check if she really understood that, so I gave her a different example. This was the result:

$$\lim_{x \rightarrow 5} \frac{1}{x-5} = \infty$$

Here's this week's problem:

Let A be the set $\{10, 11, 12, \dots, 20\}$, and let B be the set $\{21, 22, 23, \dots, 30\}$. Each element of the first set is multiplied, in turn, by each element of the second set. Find the sum of all these products.

When you think you have the problem figured out, follow the instructions below.

Submissions are due to Jason Rosenhouse by 5:00 on **Friday, April 1**. Solutions should be written on the back of an official POTW hand-out. Place your name, e-mail address, and the section numbers and professors of any math courses you are taking, in the **upper right corner** of the front of the page. One weekly winner will receive a five-dollar gift card from Starbucks. Solutions will be posted at this website, by the Monday after the problem is due:

<http://educ.jmu.edu/~rosenhjd/POTW/Spring15.html>