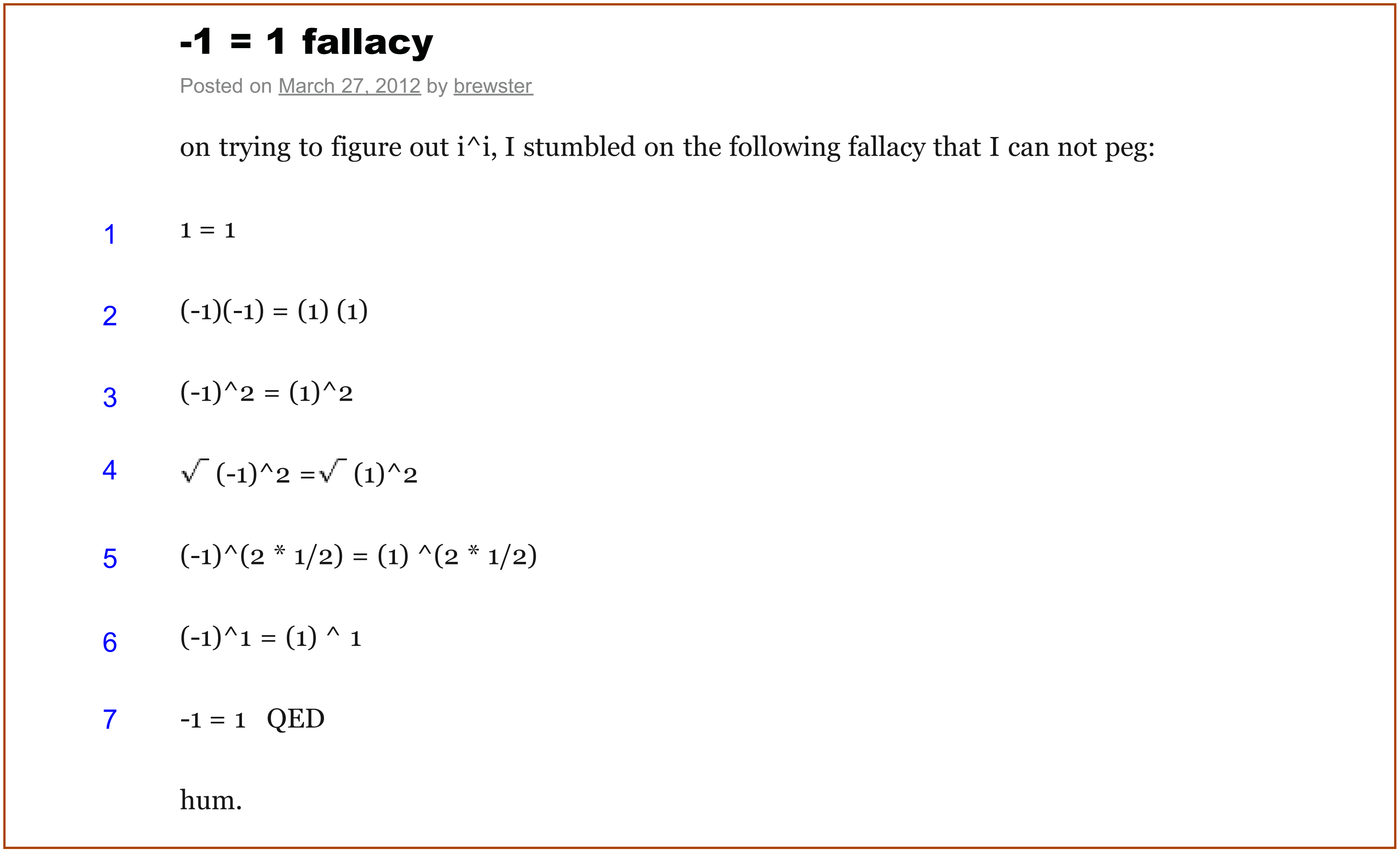
Hey Brewster, I'm pretty sure someone responded already... but the problem occurs between Step 5 and Step 6 (where I've added Eqn numbers below.) You are transforming Eq 5 by raising it to the 2/5 power, and that operation does not have a unique result -- you can't invert a function that's many-to-one with an unambiguous result.
Once you open your mind to complex numbers, exponentiation can be many-to-one.

For an easier example:
$i^4 = 1$ (on this "branch" if you then take the 1/4 power, you get *i*), but also it's true that
$1^4 = 1$ *(on this "other branch" if you then take the 1/4 power, you get 1)*

and of course it's not true that i = 1, either.



-1 = 1 fallacy

Posted on March 27, 2012 by brewster

on trying to figure out i^i, I stumbled on the following fallacy that I can not peg:

1 1 = 1

2 (-1)(-1) = (1) (1)

3 (-1)^2 = (1)^2

4 √ (-1)^2 =√ (1)^2

5 (-1)^(2 * 1/2) = (1) ^(2 * 1/2)

6 (-1)^1 = (1) ^ 1

7 -1 = 1 QED

hum.

1. Perhaps one could be on carpooling and you could have sign up sheets, route maps and ideas on parking.
2. The second could be on different free health care options. E.t.c.

2) Go your nice to see if you can better cell phone deals, it does not require if you are near [illegible]. Competition is cut throat in cell phones and they may be able to cut their bills by at least 1/3.

i. Do the same for dental care. Even minimal care like filling cavities.

3) Offer laptops at cost. Most people were concerned with education and 15% actually sent their kids to a type of private school.

LONG TERM

If you do end up doing a live/work space rent moment the research suggests you may wish to consider:

1) Offer free wifi

2) Offer shared cars – similar to zip car

3) Start a mini school

4) Know that people are paying on average $1,250 for accommodation so if you can get this to around $800 a you will increase their income by 25% and their disposable income by a factor of 2-4.

I hope this helps.

Best …Jordan

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[1] [illegible]

[2] [illegible]

[3] [illegible]

[4] A government can help create more positive net worth households by going into debt itself, but currently the dollar holdings of corporations and other foreign governments is absorbing this surplus thus pushing down those with net worth to close to zero.

[5] [illegible]

[6] The lowest Archive salaries earn less than 1/3 of the median income of $45,000 thus fall into a category of "extremely low income" renters [illegible] and "Fully 63 percent of extremely low-income renter households had severe housing cost burdens in 2009" [illegible], where "Renters with severe housing cost burdens pay more than 50% of household income for rent and utilities."

[7] Table 25 in [illegible] and Table 25 in http://www.census.gov/hhes/www/housing/[illegible].pdf

[8] [illegible]

[9] [illegible]

[10] [illegible] From May 1997 to November 2011 CPI is 49.31%, or an average of 2.4% per year, and the [illegible] Foundation investments made 86% which comes out to be 4.3% per year, or almost 2% over inflation.

[11] Inflation is calculated by an independent group from government data, but using the methods from 1990 and 1980 yielding higher inflation numbers: [illegible]

[12] http://[illegible]/2011/06/13/housing-[illegible]-and-open-source-[illegible]-ideas-to-improve-housing/

Posted in [illegible] | Tagged [illegible] | [illegible] Comments

Structural Problem with our Mortgage-based Home-ownership System

Posted on [illegible] by [illegible]

Unfortunately, as long as US homes are largely purchased with 30 year mortgages, we are going to see large price swings for homes as interest rates swing, and bail-outs more likely every time interest rates go up unless it goes up very slowly and inflation goes up to match. This is a structural problem that is going to be difficult to avoid, since many institutions are dependent on this system including millions of voters. At least understanding how this happens can help motivate looking for alternative systems, such as debt free housing.

The structural problem stems from people buying as much house as they can afford, and how much house they can afford is based on the monthly payment. ([illegible]) I do not believe this is because people are greedy, but rather that competitive pressures cause the housing prices to rise to meet the market. That is to say if the majority of people were not willing to pay a particular amount, then the housing prices would change to reflect this. This would not change the housing stock, it would just change the price it would sell for. The above cited study shows that people are willing to pay what is determined by the percentage of income allowed by government mortgage guarantee programs (Fannie Mae and Freddie Mac).

"The 30-year loan first became broadly available by an act of Congress in 1954 and, from then until now, the vast majority of such loans have been issued only with government support." [illegible]

If this government support program were to disappear, then housing prices would fall since banks are unlikely to give more favorable terms, or they would be giving them already. Since so many people and institutions would suffer with a general fall in housing prices, it will be politically difficult to take away this program.

The next step is that given a monthly mortgage rate, the price of the house is a straight calculation based on the interest rate – for a given monthly payment, the lower the interest rate, the higher the price. Monthly payments are based on salaries, since there is a formula that the federal mortgage guarantee entities use to calculate this. ([illegible])

The price is largely set by the monthly mortgage that people in the area can afford, rather than the worth of the house. In the 70's and 80's in the United States the mortgage payments were set at a maximum of 28-29% of income to be guaranteed by the government. These regulations were loosened during the 2000's which helped create the housing bubble then the bail-outs and foreclosures that are going on now. But interest rates are at historic lows, with government guaranteed 30-year fixed mortgages at less than 5% interest. When interest rates rise, then either housing prices will fall or monthly payments will have to rise. Monthly payments are based on salaries, which in turn are changed based on inflation. Housing prices falling will cause more foreclosures because more houses will have outstanding mortgages for more than they are worth, and mortgage holders will not be able to move out of a house based on selling it, so will have to foreclose if they want to move or can not afford the monthly payment for some reason.

Will inflation raise salaries enough to compensate for a rise in interest rates? It does not appear so, unless interest rates rise very slowly. A $250,000 dollar loan at 4% interest costs $1,193 per month, yet if the interest rate went up to 10%, then the cost would be over $2,193 per month. The salary would have to double to afford this increase. Doubling based on 7% inflation would take 9 years (see below). Since interest rates rise [illegible], inflation gradually will likely lag, thus causing a downward pressure on housing prices.

With 30-year mortgages, the fluctuations in interest rates will likely cause housing prices to fluctuate more than inflation can even out. Housing price decreases cause foreclosures, and enough foreclosures cause bank failures or bail-outs. Debt free housing avoids this, but that is the subject of other posts.

	Option 1	Option 2
Loan amount	$250,000	$250,000
Interest	4%	10%
30 years fixed	30	30
Monthly bill	($1,193.54)	($2,193.93)
Fannie regulation	29%	29%
min. yearly salary	$49,388	$90,783
inflation estimates	4%	7%
years to inflate salary	7%	$90,797
years:		9

Posted in [illegible] | Tagged [illegible]

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