

Applying High School Algebra to Real Estate

Years ago in high school algebra I studied topics I was sure I would never use in real life. And thus far, at age 57, I have yet to run into one quadratic equation which I needed to solve. But as a real estate broker I have finally run into some of the various types of numbers discussed, such as real numbers, rational numbers, irrational numbers, and imaginary numbers.

Real numbers are the numbers for which a home buyer writes checks. Other numbers exist on paper, but only the numbers corresponding to dollars going into or coming out of my checking account really matter.

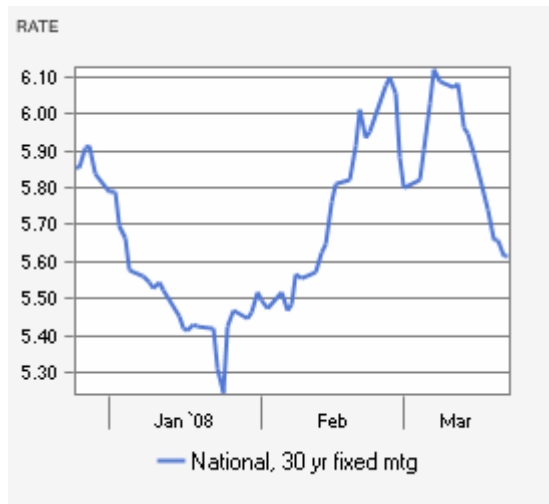
Rational numbers are logical numbers. For example, a house that was worth \$250,000 two years ago may have lost 10% of its value, while a house that was worth \$450,000 may have lost 15% of its value because the market has been worse for larger homes than for smaller homes. If I sell a house that had been worth \$250,000 for a 10% loss, or \$25,000, and buy a house that had been worth \$450,000 for 15% less, or \$67,500, my \$25,000 loss just got swallowed up by someone else's \$67,000 loss, and I "made" \$42,500! That figure is a rational number.

If I take out a mortgage on that new purchase and I finance 80% of the \$382,500 for 30 years at 6%, at closing I will sign a "Truth in Lending" statement that tells me if I keep the house and the mortgage for thirty years and never refinance, I will eventually pay over \$660,000 for this house. Since the average homeowner sells every five years, it is highly unlikely I will stay in this house anywhere near that long. And, since as I have mentioned I am already 57 and will be 87 in 30 years, it is further less likely I will pay \$660,000 for the house. Thus if I worry about the total of payments on the TIL it becomes an **irrational number**.

Unless I am paying cash for a house, even the price is not a real number. Remember, only the numbers on checks you write (or someone writes to you) are REAL numbers. So, let's say I'm the average home buyer buying the average house in Leon County in the Winter of 2008. In February I think I'm going to be smart and wait for interest rates to come down and prices to "continue falling." Bad time to buy, right? Be smart and wait, right? In February of 2008 the average price of a house sold through the Tallahassee Board of REALTORS® Multiple Listing Service was \$227,438, and interest rates were as low as 5.5% for thirty year fixed. But by mid March, that average price had gone to \$244,470 and the interest rates had hit over 6%. So I have saved a half percent on my mortgage and had saved around \$17,000 on the price of my house. Pretty smart, huh?

Wait a minute. Prices AND mortgage interest rates went UP from February to March. If I bought the average house in February and financed 90% (pretty typical) for 5.5%, my monthly principle and interest payment would have been \$1,162. But if in March I financed 90% of the average house at 6%, my new payment is \$1,319, or over \$150/month MORE, plus the down payment check I would write would be about

\$1,700 MORE! And by my definitions, \$1,319/mo. and \$1,700 are **real numbers** and \$150 will be an **irrational number** because it just doesn't make sense. I would have outsmarted myself.



Imaginary numbers describe the amount of money I lost by not selling my house at the top of the market. In the last two years I have “lost” a good 15% of the value of my home. But since I bought my house over four years ago, I have still “made” a good 15% over what I paid. Still no one has written a check for any of these numbers, thus they are not **real numbers** yet (see above). I am estimating, or imagining, profit and loss. The money I have lost is hardly more real than the square root of -1 . It exists only on paper, similar to “i.” But as I demonstrated, if you subtract an **imaginary number** from someone else’s **imaginary number**, you get an effect kind of like multiplying a negative number times another negative and getting a positive. If you subtract your smaller **imaginary number** from someone else’s larger **imaginary number**, you get a positive, **real**, and very **rational number**.

Prices have been going up. The market in Tallahassee has bottomed out. Interest rates are fluctuating, and since they more closely follow the price of crude oil than they follow the FED’s short term interest rate, I don’t expect them to fall. Many experts are saying if you plan to buy in the next few months, lock now.

Conclusions: the time to buy likely will not get any better than it is right now, especially if you are considering “moving up.”

Who knew Algebra could be so much fun AND PRACTICAL?

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