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CS135

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Homework 4

*I pledge my honor that I have abided by the Stevens Honor System.*

2.3

* 1. 1/x is undefined for x = 0.
  2. Square root of x is not real for negative numbers.
  3. X^2 will give us the same answer for positive/negative numbers of the same absolute value.
  4. This is one to one. Every real number has a value that is one less than it.
  5. This is not one to one; negative numbers will return the same answers as their positive counterparts.
  6. This is one to one. Each positive and negative number has its own unique cube.
  7. Because the ceiling function for n/2 will return 1 for both 1 and 2, this function is not one to one.
  8. F(n) = n – 1 is onto; every real number has a corresponding value one less than it.
  9. No, because there is no way to get a negative number from this function, for example.
  10. Using integers, there is no way for n^3 to equal any number that isn’t a perfect cube, meaning the function isn’t onto. If using all real numbers, I believe it would be onto. (not sure?)
  11. Because every number has a double, f(n) is onto.

2.4

* 1. {1, -2, 4, -8}
  2. {3, 3, 3, 3}
  3. {8, 11, 23, 71}
  4. {2, 0, 8, 0}
  5. {2, 12, 72, 432, 2592}
  6. {sqrt(2), 2, 4, 16, 256}
  7. {1, 2, 5, 11, 26}