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August 8th, 2016

**Homework #1**

Q1. In base 36, there are 36 digits 0, 1, 2, 3, 4…9, A, B, C, D… X, Y, Z.

What is the equivalent number in radix 10 for (ADD)36

(ADD)36 = (?)10

10 \* 362 + 13 \* 361 + 13 \* 360 = 13,441

(13,441)10

Q2. What is the radix of the numbers if the solution to the quadratic equation x2-10x+26=0 is x=4 and x=7?

x2 – 10x + 26 = 0 x = 4,7

42 – 10 \* 4 + 26 = 0 Substitute 4 for x.

26 = 2r + 6 26 is equivalent to 2 of whatever base plus 6.

10 = 1r + 0 Also, 10 is equivalent to base1

42 – (r \* 4) + (2r + 6) = 0 Substitute the values.

16 – 4r + 2r + 6 = 0 Simplifiy.

22 – 2r = 0

22 = 2r

r = 11 Radix is 11.

Q3. Fill the multiplication table for base seven.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | 0 | 2 | 4 | 6 | 11 | 13 | 15 |
| 3 | 0 | 3 | 6 | 12 | 15 | 21 | 24 |
| 4 | 0 | 4 | 11 | 15 | 22 | 26 | 33 |
| 5 | 0 | 5 | 13 | 21 | 26 | 34 | 42 |
| 6 | 0 | 6 | 15 | 24 | 33 | 42 | 51 |