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605.411 Problem Set 3

1.

Decimal Value	IEEE F.P.Pattern	Type
2^{124}	0x7E000000	Normalized
2^{-126}	0x00800000	Normalized
2^{227}	0x7F800000	Infinity
2^{-132}	0x00020000	Denormalized

2. (a) The mathematically correct answer $(y \times 2000) + x = 1572871.8125$

   (b) sum=0.0
   for(i=0;i<2000;i++)sum=sum+y //
   sum=sum+x // sum = 1572867.8 (49C0001E in F.P.Pattern)

   (c) sum = y*z //
   sum = sum +x // sum = 1572867.8

   (d) sum = x;
   for (i=0; i<2000; i++)sum = sum+y; // sum = 1572864.0

3. (a) addi $7, $7, 15

   (b) $134217728 + 15 = 134217743$

   (c) addi $t0, $0, 15
   mtc1 $t0, $f1
   add.s $f4, $f4, $f1

   (d) The result of this would be 134217776.

4. (a) With the dividend rule $\frac{-89}{6} = -14$ with remainder -5

   (b) With the divisor rule $\frac{-89}{6} = -15$ with remainder 1