Plancha 3 Ejercicios 1 y 2
Arquitectura del Computador

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Ejercicio 1:

```c
#include <stdlib.h>
#include <stdio.h>
#include <ieee754.h>

int parte_frac (float f){
  return (*(int*)&f) & 0x007FFFFF;
}

int parte_exp (float f){
    return (((*(int*)&f) & 0x7F800000) >> 23);
}

int main (){
    float f = 1.2;
    union ieee754_float fl;
    fl.f = f;
    printf("Funciones propias:\n");
    printf("Exponente: %d, Fracci\'on: %x\n", parte_exp(f), parte_frac(f));
    printf("Funciones de ieee754.h:\n");
    printf("Exponente: %d, Fracci\'on: %x\n", fl.ieee.exponent, fl.ieee.mantissa);
    return 0;
}
```

Ejercicio 2:

```c
#include <stdio.h>
#include <ieee754.h>
#include <math.h>

int getFloatExponent(float f){
    return (((*(int*)&f) & 0x7F800000) >> 23);
}
int getFloatMantissa(float f){
    return ((*(int*)&f) & 0x007FFFFF);
}

//a
int myIsNaN(float f) {
    if (getFloatExponent(f) == 255 && getFloatMantissa(f) != 0) {
        return 1;
    }
    return 0;
}

//b
int myIsNaN2(float f) {
        return f != f;
}
```

```c
int main()
{
    /*union ieee754_float f = NAN;
    int fraccion = f.ieee.exponent;*/

    printf("%d \n", getFloatExponent(NAN));
    printf("%d \n", getFloatMantissa(NAN));

    printf("nan1 \n");
    printf("%d \n", myIsNaN(NAN));
    printf("%d \n", myIsNaN(3.4));


    printf("nan2 \n");
    printf("%d \n", myIsNaN2(NAN));
    printf("%d \n", myIsNaN2(3.4));


    //c
    float f = INFINITY;
    printf("inf == inf: %d\n", f == f);
    printf("INFINITY == INFINITY: %d\n", INFINITY == INFINITY);

    //d
    printf("10 + INFINITY == INFINITY: %d\n",10+INFINITY == INFINITY);
    printf("INFINITY + INFINITY == INFINITY: %d\n",INFINITY+INFINITY == INFINITY);
    printf("NAN + INFINITY == NAN: %d\n",isnan(NAN+INFINITY));
    return 0;
}
```