Module 2 solutions

1. Both statements are false.
2. See quiz answers here.
3. See quiz answers here.
4. Autolab solutions will be available on DTU Learn after the deadline.
5. Exercise 14 (Ch. 7, p. 159) in the textbook:

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

int main(void) {
  double x=0, y=1, yold=0;

  // Prompt user to input x
  printf("Enter a positive number: ");
  if (scanf("%lf",&x)!=1) {
    printf("Error: failed to read a number.\n");
    return -1;
  }
  // Check that x is finite and positive
  if (!isfinite(x) || x<=0) {
    printf("Error: x must finite and positive.\n");
    return -1;
  }

  // Run iteration and print result
  printf("%-8s  %-8s  %-8s  %-8s\n","x","y","x/y","Avg.");
  while (fabs(y-yold) > 1e-5*y) {
    yold = y;
    y = 0.5*(y+x/y);
    printf("%-.2e  %-.2e  %-.2e  %-.2e\n",x,yold,x/y,y);
  }
  printf("sqrt(x) approx: %-.5e\n",y);

  return 0;
}
```

6. The number 2,343,432,205 is larger than $2^{31}-1$ but smaller than $2^{32}-1$, so it can be represented as an unsigned 32 bit integer. Recall that the range of a signed 32-bit integer is from -2^{31} to $2^{31}-1$ (assuming *two's complement* representation) whereas the range of an unsigned 32-bit integer is from 0 to $2^{32}-1$.)

   Create a file (`hexrepr.c`) with the following content:

```c
#include <stdio.h>
int main(void)
{
  unsigned long a = 2343432205UL;
  printf("The hex representation of %lu is: %lX\n",a,a);
  return 0;
}
```

Compile and run the program using the following commands:

```
$ make hexrepr
$ ./hexrepr
The hex representation of 2343432205 is: 8BADF00D
```