The Hidden Pitfalls Of Computer Arithmetic

1. Write a program which will evaluate the expression $y = \frac{x^3 - 4x^2}{x^2 - 12 - 7x}$

   Y= x^3-$4x^2$
   $x^3 - 7x + 12$

   for values -10,-9.9,-9.8,.....9.8,9.9,10. Your program should error check the denominator for a 0 evaluation which would make answer undefined.

2. Given a triangle with sides a,b, and c . Determine which of the following triangles are right angled. Hint: Remember Pythagoras?

a	b	c
3	4	5
.30	.40	.50
12	5	13
.31	.40	.50
3000	4000	5000

3. Three points (x1,y1),(x2,y2),(x3,y3) are collinear if and only if $\frac{x_2 - x_1}{y_2 - y_1} = \frac{x_3 - x_1}{y_3 - y_1}$

   $\frac{X2 - X1}{Y2 - Y1} = \frac{X3 - X1}{Y3 - Y1}$

   Given the following points, determine which are collinear.
   a) (1,3),(2,6),(5,15)
   b) (1,3),(2,6),(5,14.5)
   c) (.1,.7),(.2,1.4),(.3,2.10)
   d) (.4,.7),(.8,1.4),(1.2,2.1)

4. Determine and output all the perfect squares between 1-1000