Exercício de Programação 3:
Polinômios de Lagrange e de Newton

1) Interpolações

a) $P_1(2, 1)$

i) Polinômio de Lagrange

```
raphael@raphael-ubuntu:~/Downloads/AlgNum/Ex03/codigo$ octave principal.m
QSocketNotifier: Can only be used with threads started with QThread
m = 2
x =

   2.0000   2.2000   2.4000   2.5000   2.7000   2.9000

y =

    5.6569    7.1789    8.9234    9.8821   11.9787   14.3217

z = 2.1000
Interpolacao via polinomio de Lagrange
Pz = 6.4179
```

ii) Polinômio de Newton

```
raphael@raphael-ubuntu:~/Downloads/AlgNum/Ex03/codigo$ octave principal.m
QSocketNotifier: Can only be used with threads started with QThread
m = 2
x =

   2.0000   2.2000   2.4000   2.5000   2.7000   2.9000

y =

    5.6569    7.1789    8.9234    9.8821   11.9787   14.3217

z = 2.1000
Interpolacao via polinomio de Newton
Pz = 6.4179
```

b) $P_2(2, 1)$

i) Polinômio de Lagrange

```
raphael@raphael-ubuntu:~/Downloads/AlgNum/Ex03/codigo$ octave principal.m
QSocketNotifier: Can only be used with threads started with QThread
m = 3
x =

   2.0000   2.2000   2.4000   2.5000   2.7000   2.9000

y =

    5.6569    7.1789    8.9234    9.8821   11.9787   14.3217

z = 2.1000
Interpolacao via polinomio de Lagrange
Pz = 6.3901
```

ii) Polinômio de Newton

```
raphael@raphael-ubuntu:~/Downloads/AlgNum/Ex03/codigo$ octave principal.m
QSocketNotifier: Can only be used with threads started with QThread
m = 3
x =

   2.0000   2.2000   2.4000   2.5000   2.7000   2.9000

y =

    5.6569    7.1789    8.9234    9.8821   11.9787   14.3217

z = 2.1000
Interpolacao via polinomio de Newton
Pz = 6.3901
```

c) $P_3(2, 1)$

i) Polinômio de Lagrange

```
raphael@raphael-ubuntu:~/Downloads/AlgNum/Ex03/codigo$ octave principal.m
QSocketNotifier: Can only be used with threads started with QThread
m = 4
x =

   2.0000   2.2000   2.4000   2.5000   2.7000   2.9000

y =

    5.6569    7.1789    8.9234    9.8821   11.9787   14.3217

z = 2.1000
Interpolacao via polinomio de Lagrange
Pz = 6.3907
```

ii) Polinômio de Newton

```
QSocketNotifier: Can only be used with threads started with QThread
m = 4
x =

   2.0000   2.2000   2.4000   2.5000   2.7000   2.9000

y =

    5.6569    7.1789    8.9234    9.8821   11.9787   14.3217

z = 2.1000
Interpolacao via polinomio de Newton
Pz = 6.3907
```

2) Comparação das interpolações com o valor exato $f(2,1) = 6,3907$

Grau do Polinômio Interpolador, n	$P_n(2,1)$		$\lvert f(2,1) - P_n(2,1) \rvert$	
	Lagrange	**Newton**	**Lagrange**	**Newton**
1	**6,4179**	**6,4179**	**- 0,0272**	**- 0,0272**
2	**6,3901**	**6,3901**	**0,0006**	**0,0006**
3	**6,3907**	**6,3907**	**0**	**0**