

Inlämningsuppgift 1

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1.1

$$\sin(0.2 \cdot \pi) =$$

0.5878

$$\exp(2) + \sin(0.3) =$$

7.6846

$$(\exp(3) + \cos(0.4)) / (1 + 3.4^2) =$$

1.6725

$$(3 + 2i) \cdot (5 + 7i) =$$

1.0000 + 31.0000i

$$(2 + 4i)^3 =$$

-88.0000 - 16.0000i

1.5d

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 1 & 3 \\ 0 & 2 & 4 \end{bmatrix};$$

$$\text{inv}(A) =$$

0.3333 0.3333 -0.5000

1.3333 -0.6667 -0.5000

-0.6667 0.3333 0.5000

1.5g

$$B = \begin{bmatrix} 2 & 3 & 1 \\ 0 & 3 & 6 \\ 1 & 1 & 1 \end{bmatrix}$$

$$\det(B) =$$

9

1.6

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 1 & 3 \\ 0 & 2 & 4 \end{bmatrix};$$

$$B = \begin{bmatrix} 1 & 3 & 5 \end{bmatrix};$$

$$r1 = A \setminus B =$$

-1.1667

-3.1667

2.8333

$$C = \begin{bmatrix} 2 & 5 & 1 & 2 \\ 0 & -3 & 2 & 3 \\ 2 & 1 & 0 & 0 \\ 3 & 3 & 3 & -3 \end{bmatrix};$$

$$D = \begin{bmatrix} 2 & 1 & 10 & 3 \end{bmatrix};$$

$$r2 = C \setminus D =$$

5.7937

-1.5874

-2.5733

0.4615

1.7

A=[1 4 3; 3 0 3; -2 1 -2; 4 3 7; 0 3 3];

B=[9.2; 5.8; -4.3; 14.5; 5.7];

r = A\B =

1.4500

1.2400

0.7350

1.8

% $x^3 + 2x^2 + 3x + 1$

x1= roots([1 2 3 1]) =

-0.7849 + 1.3071i

-0.7849 - 1.3071i

-0.4302 + 0.0000i

% $5x^5 + 3x^4 + 1.5x^3 + 2x + 4$

x2 = roots([5 3 1.5 0 2 4]) =

-0.9090 + 0.0000i

-0.4994 + 0.8926i

-0.4994 - 0.8926i

0.6540 + 0.6431i

0.6540 - 0.6431i

% $3x^8 + 1$

x3 = roots([3 0 0 0 0 0 0 1]) =

-0.8053 + 0.3336i

-0.8053 - 0.3336i

-0.3336 + 0.8053i

-0.3336 - 0.8053i

0.3336 + 0.8053i

0.3336 - 0.8053i

0.8053 + 0.3336i

0.8053 - 0.3336i

1.9

```
x = [-1; 2; 3; 4];
```

```
syms t
```

```
p = poly2sym(poly(x), t) =
```

```
t^4 - 8*t^3 + 17*t^2 + 2*t - 24
```

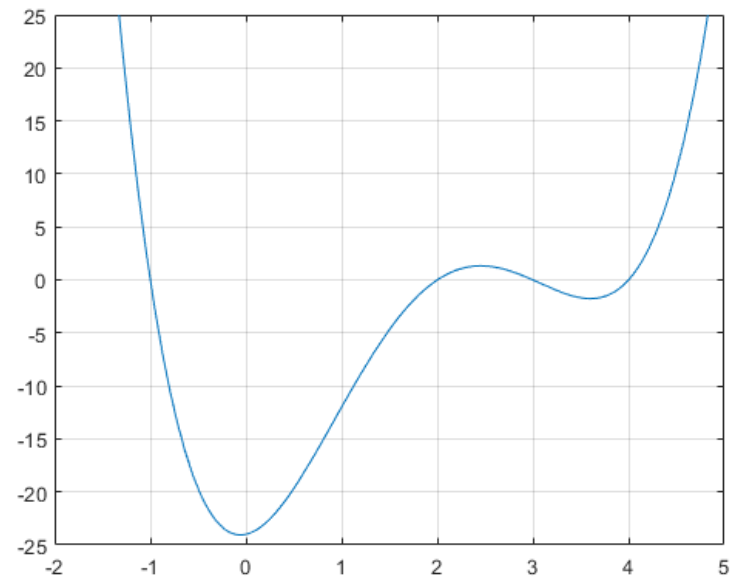


Fig 1: Utskrift från 1.9. Rötterna stämmer överens med dem angivna av vektorn x.

1.15

```
for x=[500 2000]
```

```
    a=0;
```

```
    for y = 0:x
```

```
        a = a+y;
```

```
    end
```

```
    a
```

```
end
```

```
a = 125250
```

```
a = 2001000
```

1.18

```
x = 0:0.2:50;
```

```
f1 = sin(x) + cos(0.2.*x);
```

```
plot(x, f1)
```

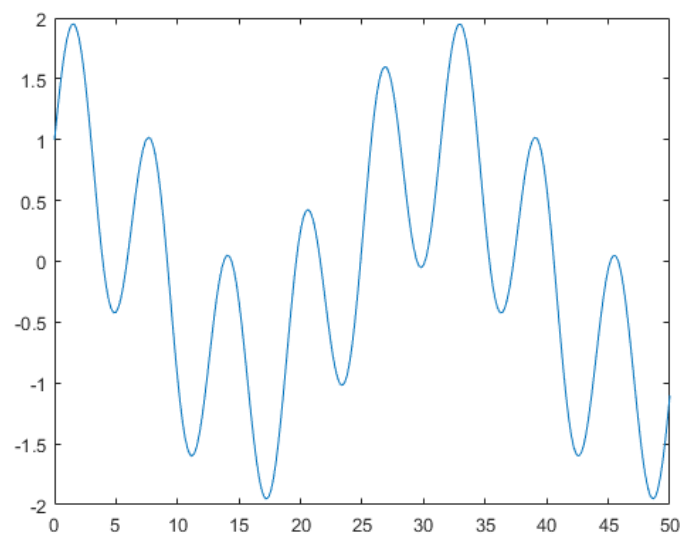


Fig 2: Utskrift från 1.18

1.19

```
subplot(2, 2, 1), plot(x, sin(x))  
subplot(2, 2, 2), plot(x, cos(x))  
subplot(2, 2, 3), plot(x, sin(.5.*x))  
subplot(2, 2, 4), plot(x, cos(.5.*x))
```

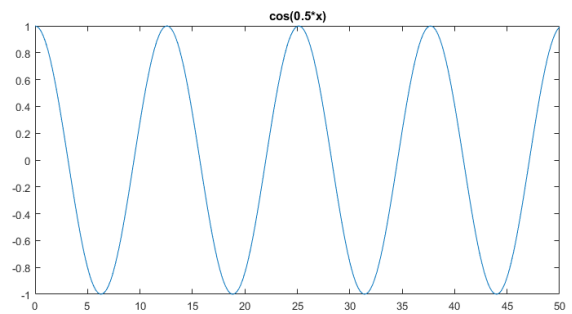
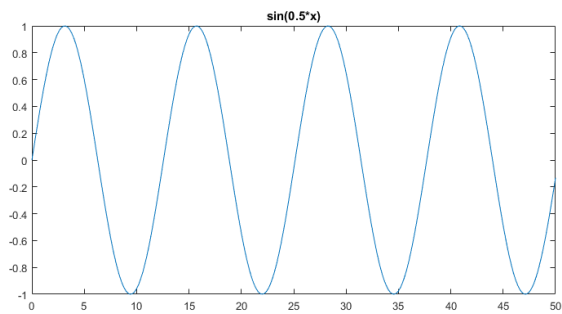
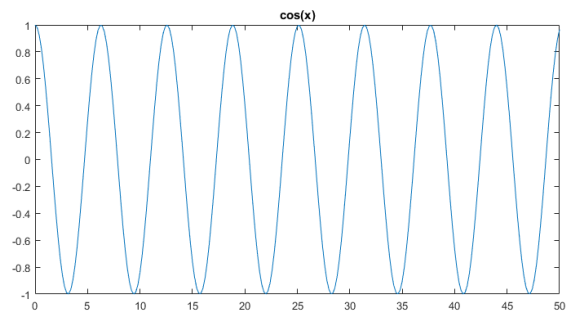
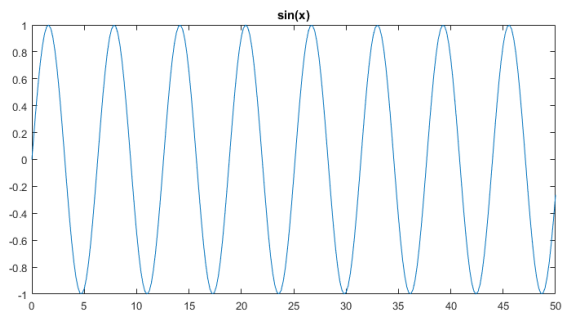


Fig 3: Utskrift från 1.19

1.23

```
function delning(A)  
input_var = input('Ge ett reellt tal: ');  
if input_var == 0  
    disp('Math Error!')  
else  
    disp(A./input_var)  
end
```