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Homework 7

```
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% Date 06/04/2018
```
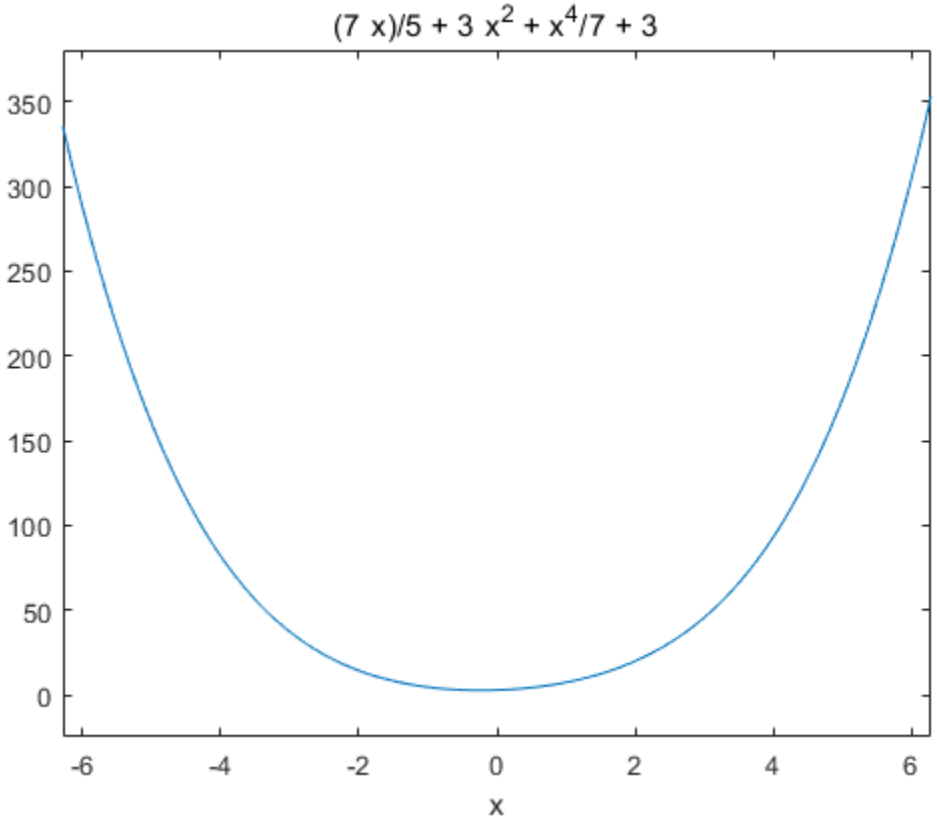

Polynomial

```
clear
clc

syms x
f(x) = 1/7 * x^4 + 3 * x^2 + 1.4 * x + 3;
ezplot(f)

[x_min, y_min] = fminsearch(f, -2)
subs(diff(f(x),x), x_min)

f = @(x) x^4 + 3 * x^2 + 1.4 * x + 153;
[x_min, y_min] = fminbnd(f, -2, 2)
```

```
x_min =

   -0.2321


y_min =

    2.8371


ans =

148702567/1879048192000


x_min =

   -0.2257
```

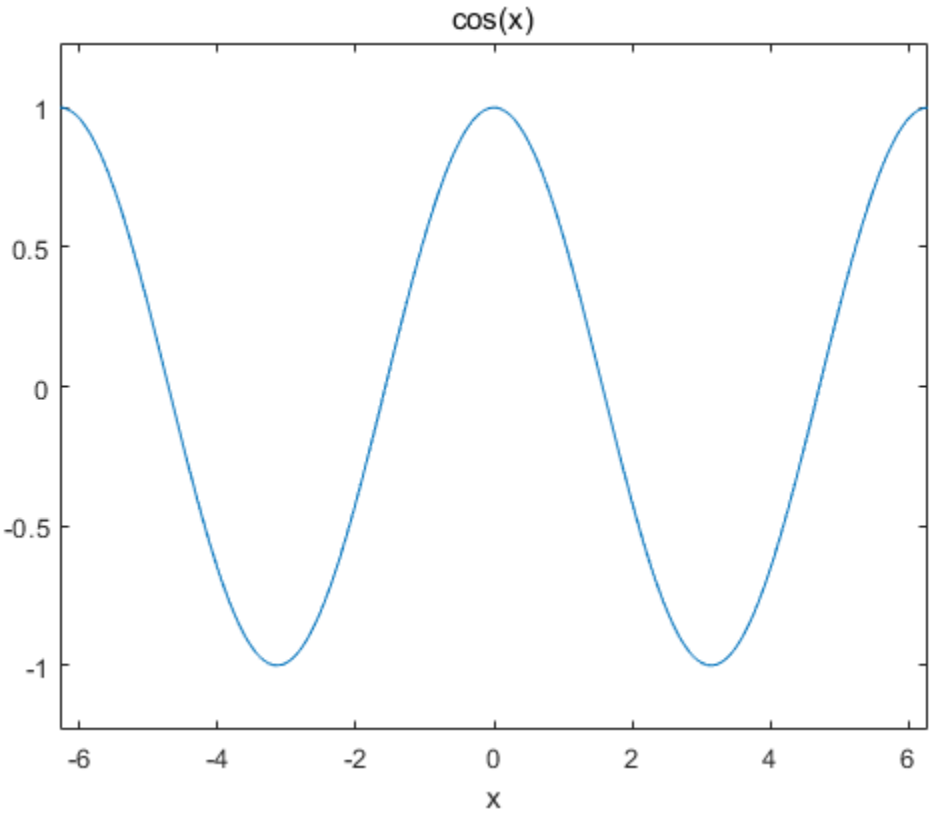
```
y_min =

  152.8394
```



Triangular

```
clear
clc

syms x
g(x) = cos(x);
ezplot(g)

[x_min, y_min] = fminsearch(g, -4)
subs(diff(g(x),x), x_min)

g = @(x) cos(x);
[x_min, y_min] = fminbnd(g, -4, -2)


x_min =

   -3.1416
```

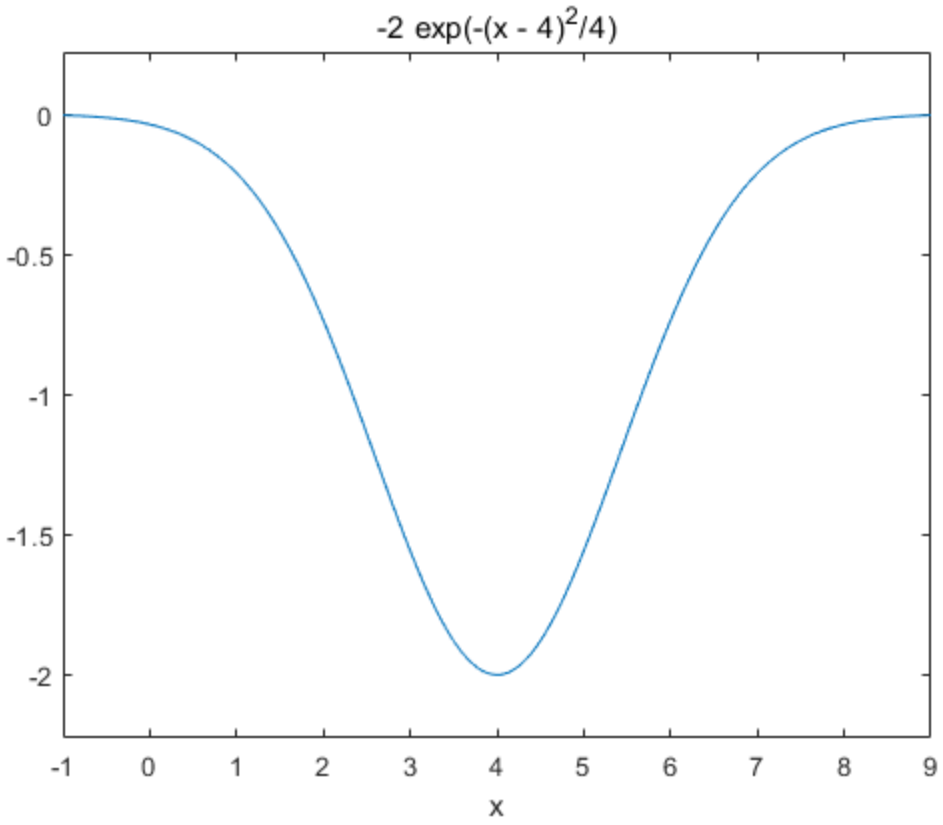
```
y_min =

   -1.0000

ans =

sin(3217/1024)

x_min =

   -3.1416

y_min =

   -1.0000
```



Exponential Function

```
clear
clc

syms x
```

```
h(x) = -2 * exp(-((x - 4)^2)/(2^2));
ezplot(h, [-1, 9])

[x_min, y_min] = fminsearch(h, 2)
subs(diff(h(x),x), x_min)

h = @(x) -2 * exp(-((x - 4)^2)/(2^2));
[x_min, y_min] = fminbnd(h, 2, 6)


x_min =

    4.0000


y_min =

    -2


ans =

0


x_min =

     4


y_min =

    -2
```



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