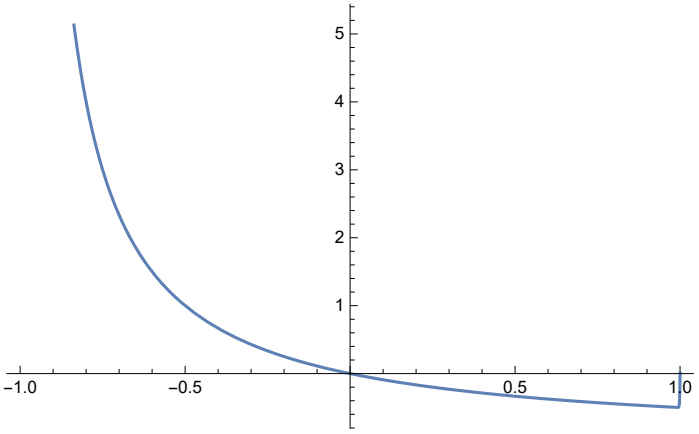
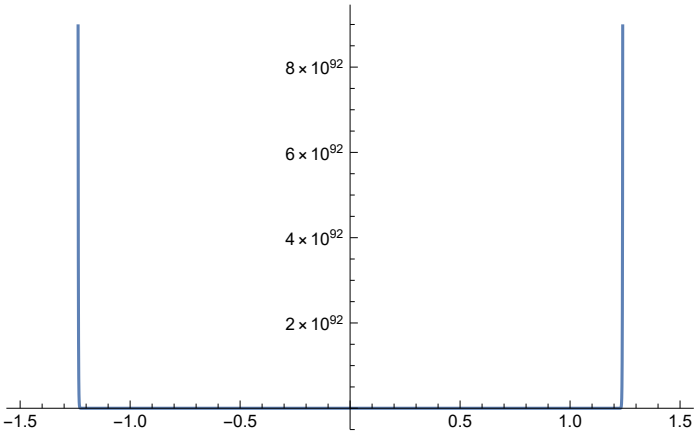
In[1]:=
```
(* If degree (highest power) is even then the nature of the polynomial function in
 the left and right side of the x will be similar (either both will go up or down)
 when x is very large.  If degree (highest power) is odd then the nature
 of the polynomial function in the left and right side of the x will be
 opposite (if one go up the other will go down) when x is very large.*)
```

In[2]:=
```
f[x_] := Sum[(-1)^n x^n, {n, 1, 1000}];          (* degree=1000 (even) *)
Plot[f[x], {x, -1, 1}]
Plot[f[x], {x, -1.5, 1.5}]
```

Out[2]=

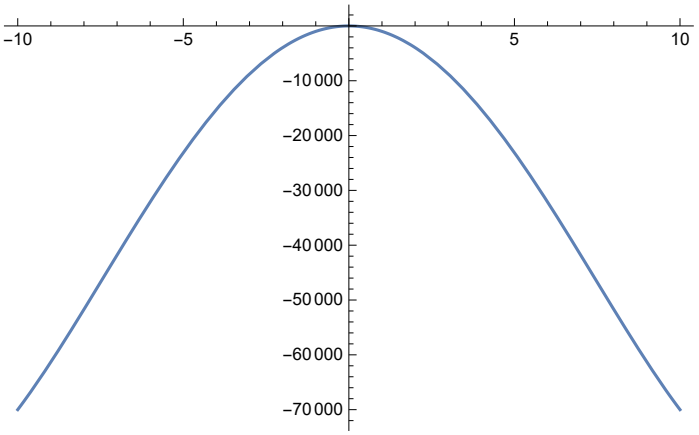


Out[3]=

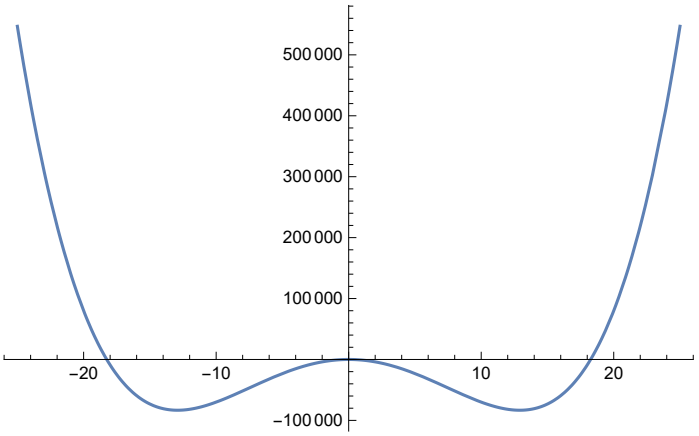


In[4]:=
```
f[x_] := 3 x^4 - 1000 x^2;          (* degree=4 (even) *)
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -25, 25}]
Plot[f[x], {x, -100, 100}]
```

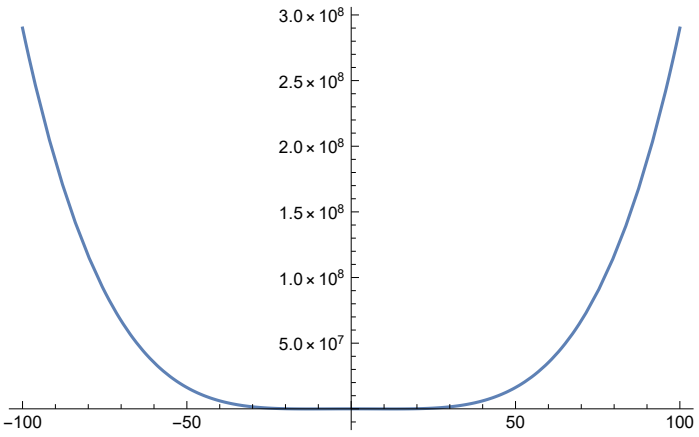
Out[4]=



Out[5]=

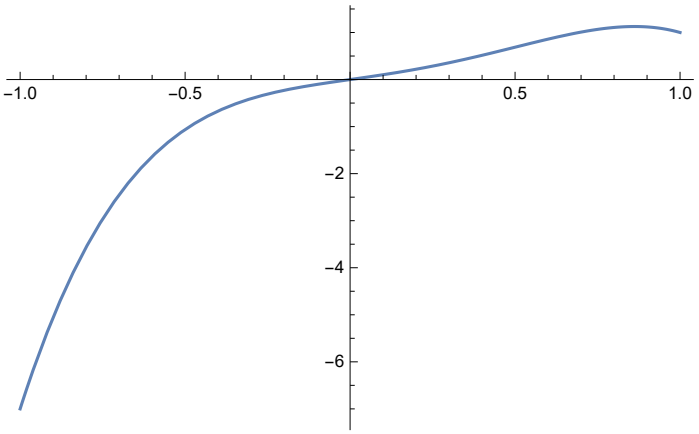


Out[6]=

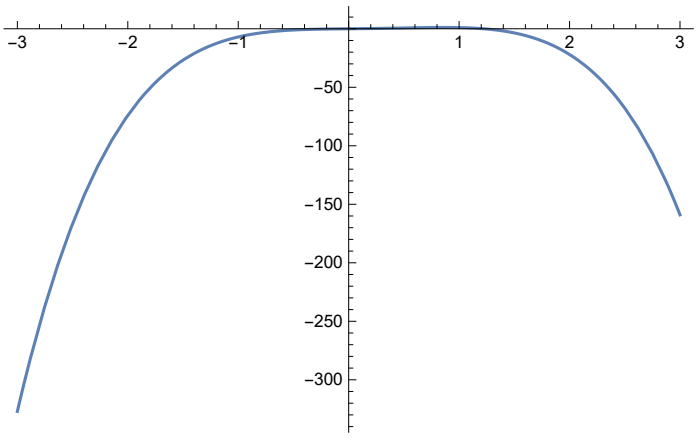


In[7]:=
```
f[x_] := -3 x^4 + 3 x^3 + x;          (* degree=4 (even) *)
Plot[f[x], {x, -1, 1}]
Plot[f[x], {x, -3, 3}]
```

Out[7]=

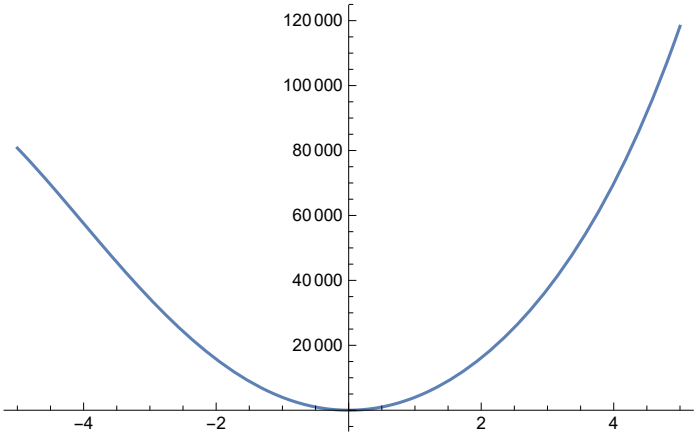


Out[8]=

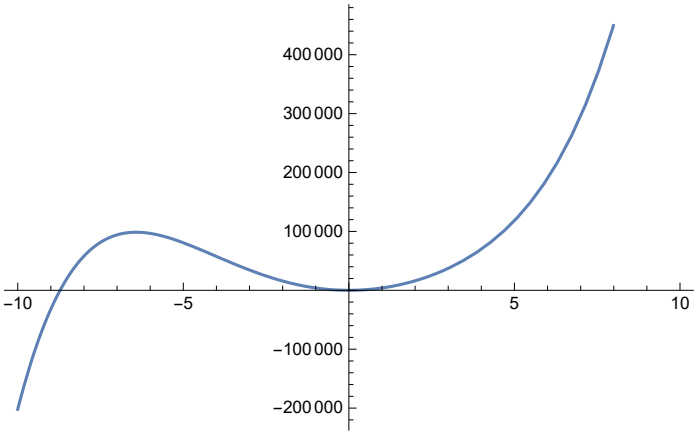


In[9]:=
```
f[x_] := 6 x^5 + 3980 x^2 + x + 5;      (* degree=5 (odd) *)
Plot[f[x], {x, -5, 5}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

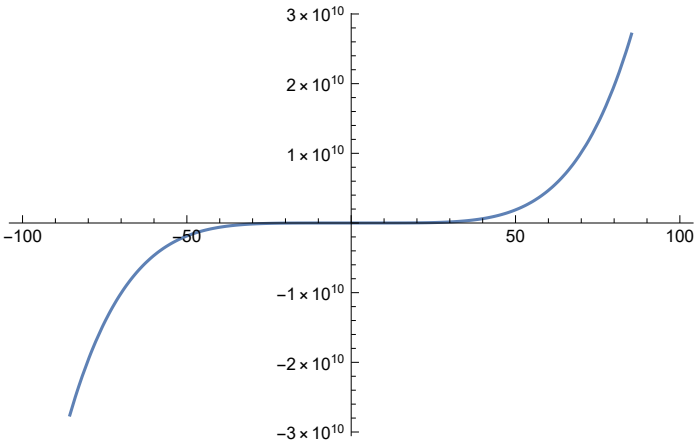
Out[9]=



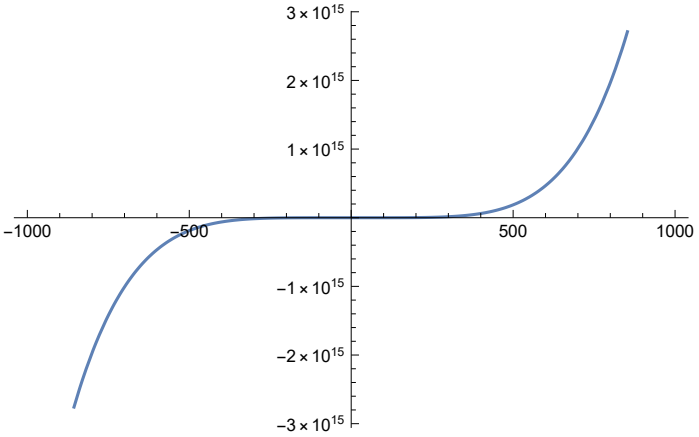
Out[10]=



Out[11]=

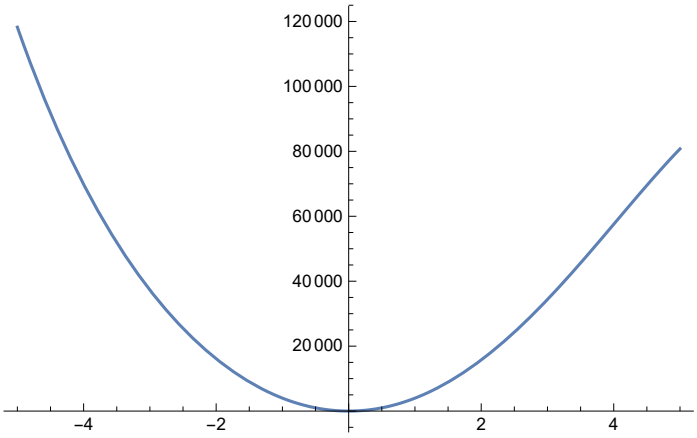


Out[12]=

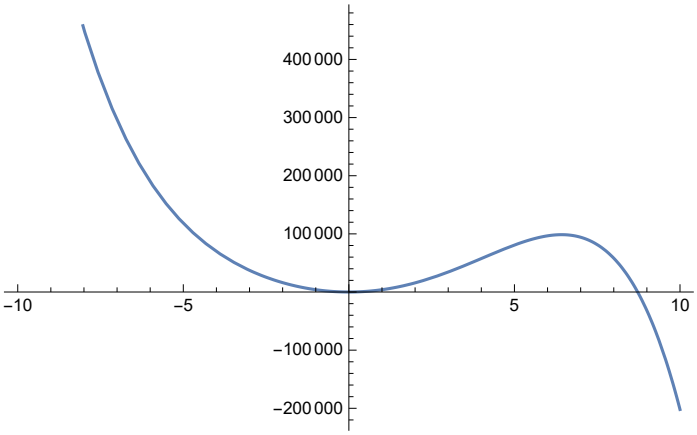


In[13]:=
```
f[x_] := -6 x^5 + 3980 x^2 + x + 5;      (* degree=5 (odd) *)
Plot[f[x], {x, -5, 5}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

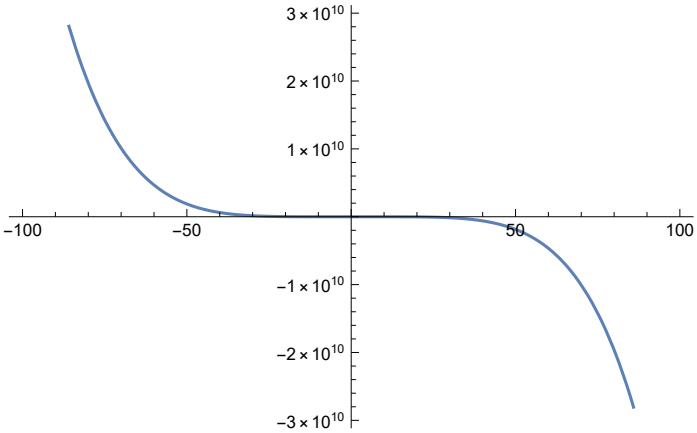
Out[13]=



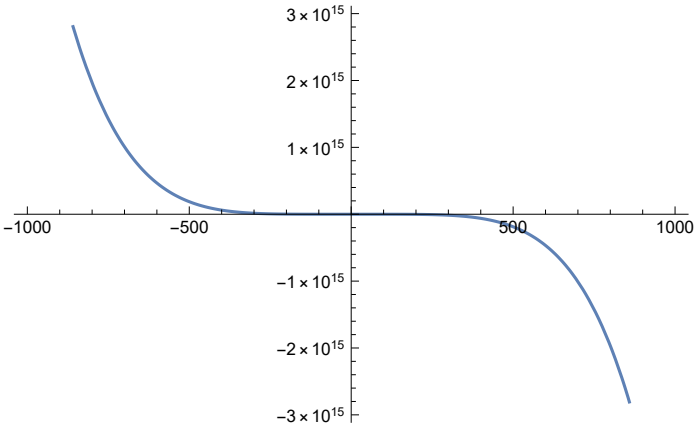
Out[14]=



Out[15]=

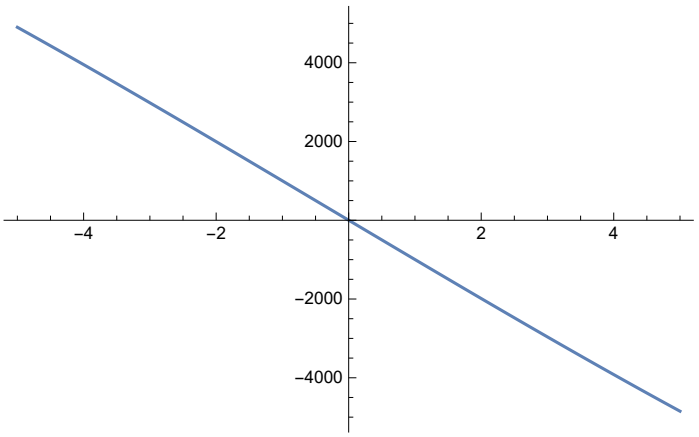


Out[16]=

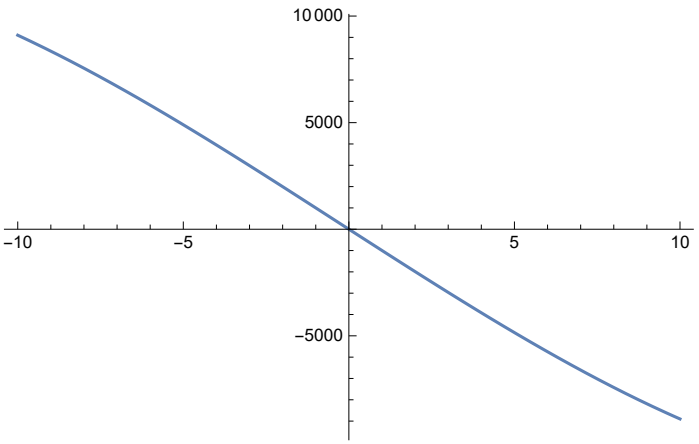


In[17]:=
```
f[x_] := x^3 + x^2 - 1000 x + 1;        (* degree=3 (odd) *)
Plot[f[x], {x, -5, 5}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

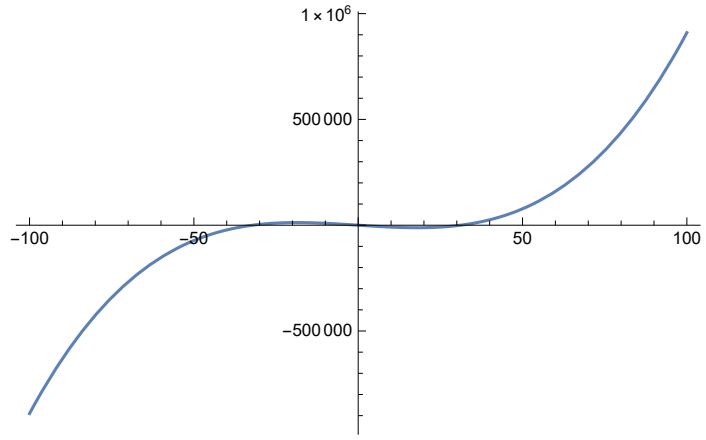
Out[17]=



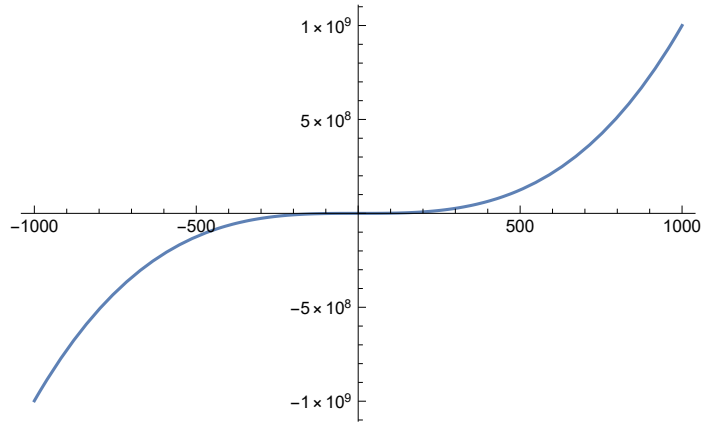
Out[18]=



Out[19]=

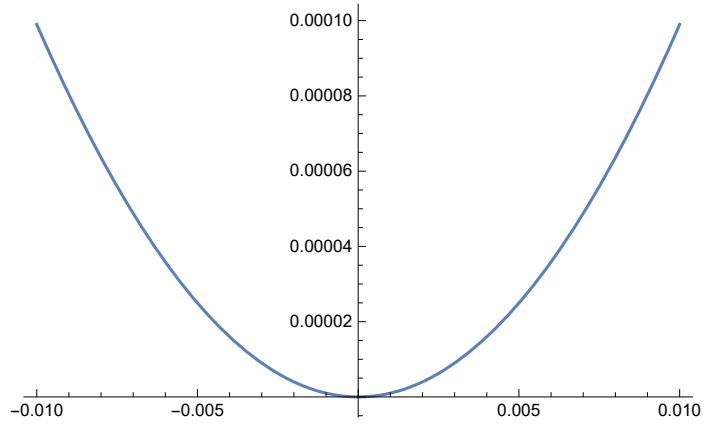


Out[20]=

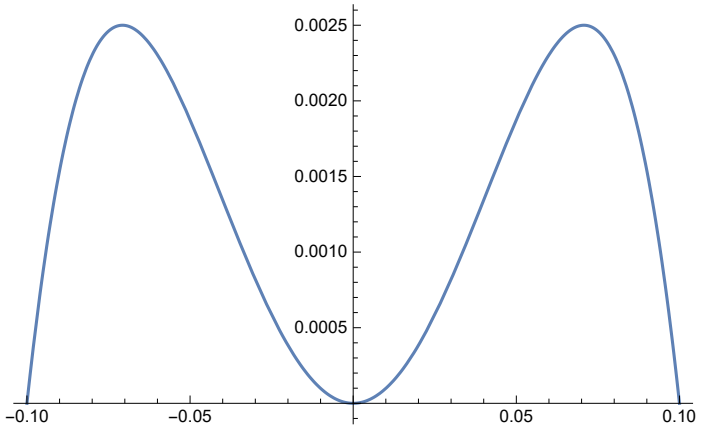


In[21]:=
```
f[x_] := -x^10 + x^2 - 100 x^4 + x^9;        (* degree=10 (even) *)
Plot[f[x], {x, -0.01, 0.01}]
Plot[f[x], {x, -0.1, 0.1}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

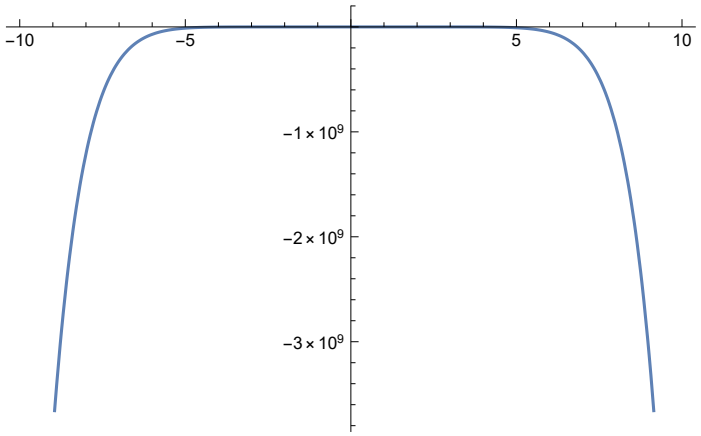
Out[21]=



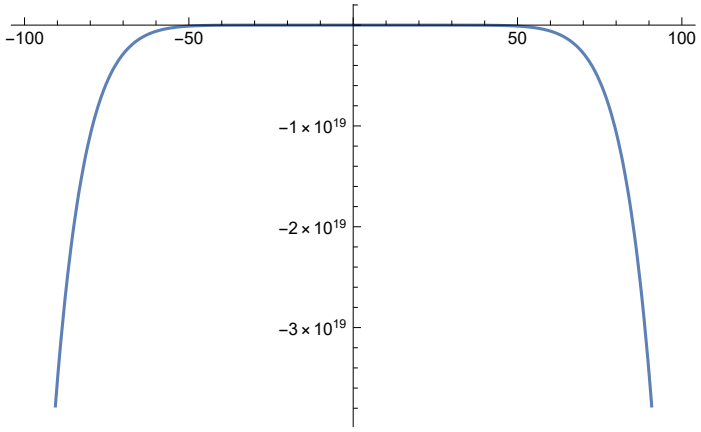
Out[22]=



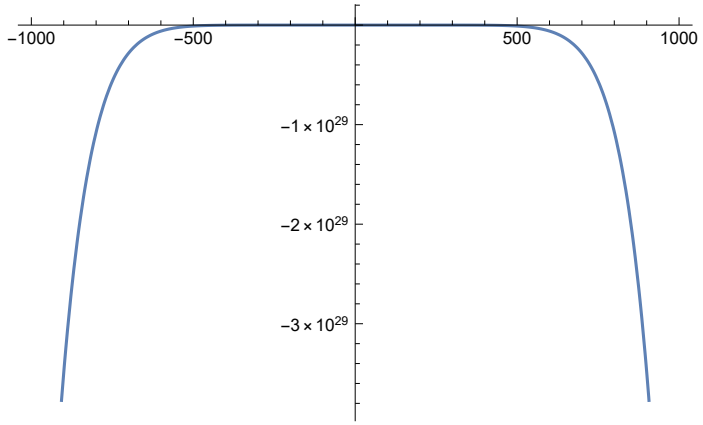
Out[23]=



Out[24]=

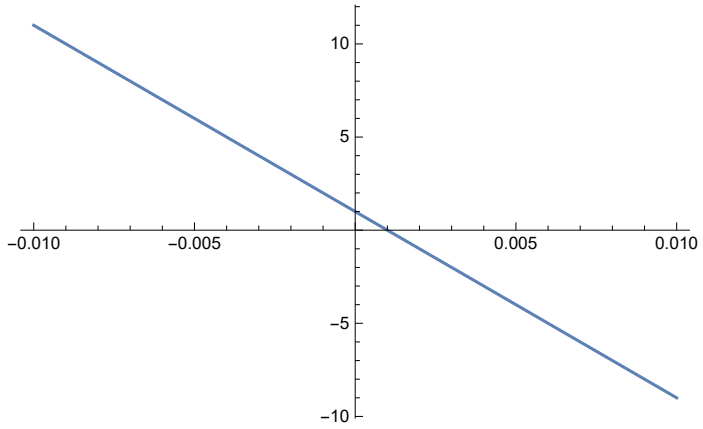


Out[25]=

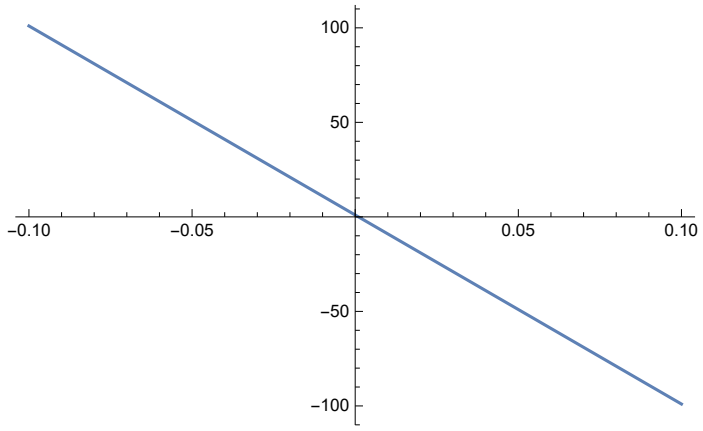


In[26]:=
```
f[x_] := x^3 + x^4 - 1000 x + 1;          (* degree=4 (even) *)
Plot[f[x], {x, -0.01, 0.01}]
Plot[f[x], {x, -0.1, 0.1}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -20, 20}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

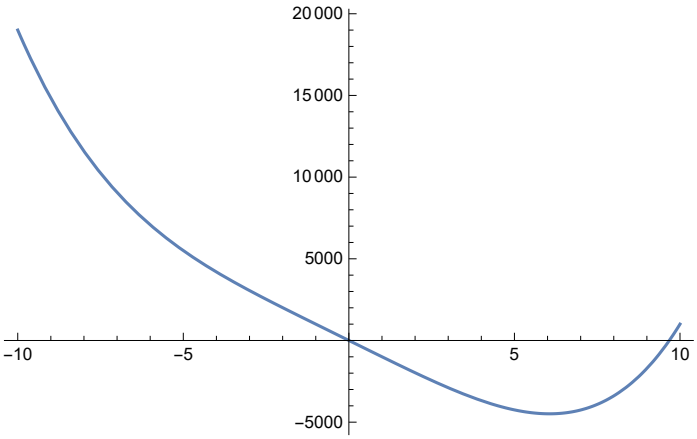
Out[26]=



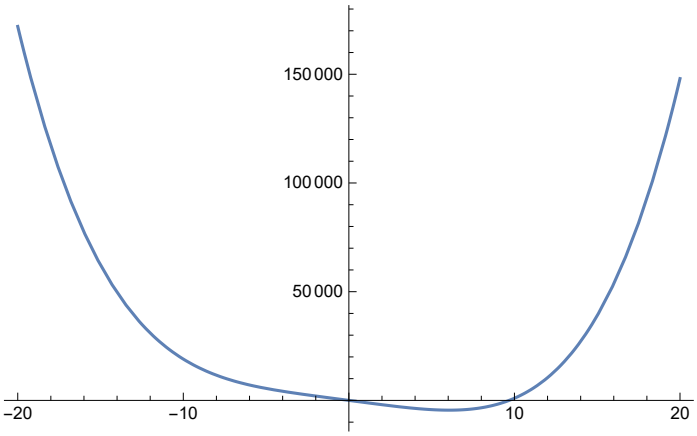
Out[27]=



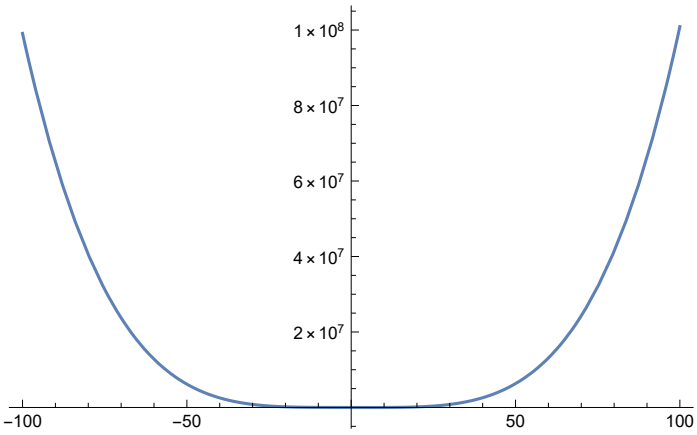
Out[28]=



Out[29]=



Out[30]=



Out[31]=