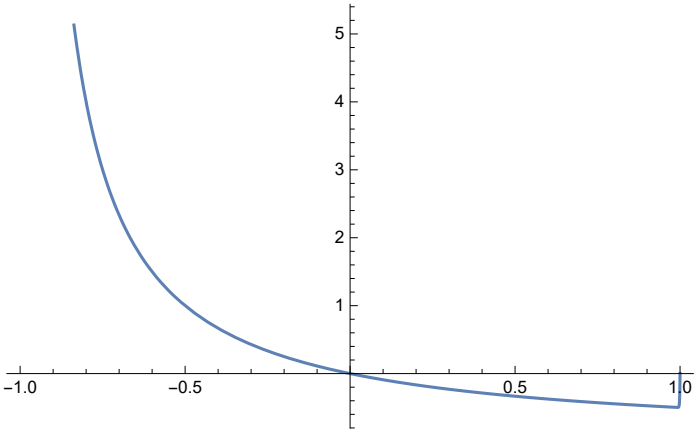
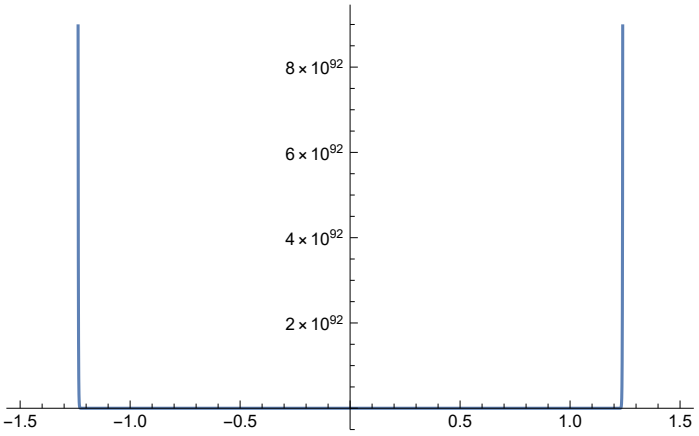
In[227]:=
```
(* If degree (highest power) is even then the nature of the polynomial function in
 the left and right side of the x will be similar (either both will go up or down)
 when x is very large.  If degree (highest power) is odd then the nature
 of the polynomial function in the left and right side of the x will be
 opposite (if one go up the other will go down) when x is very large.*)
```

In[228]:=
```
f[x_] := Sum[(-1)^n x^n, {n, 1, 1000}];
Plot[f[x], {x, -1, 1}]
Plot[f[x], {x, -1.5, 1.5}]
```

Out[229]=

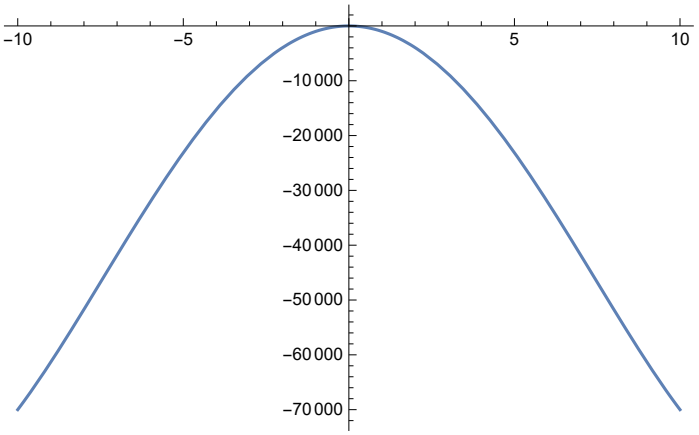


Out[230]=

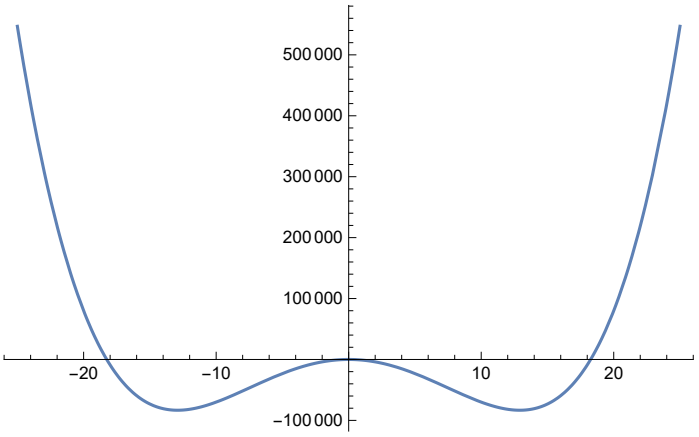


In[231]:=
```
f[x_] := 3 x^4 - 1000 x^2;
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -25, 25}]
Plot[f[x], {x, -100, 100}]
```

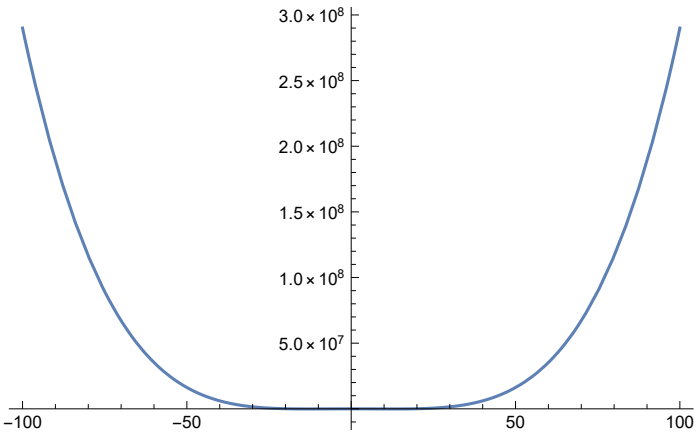
Out[232]=



Out[233]=

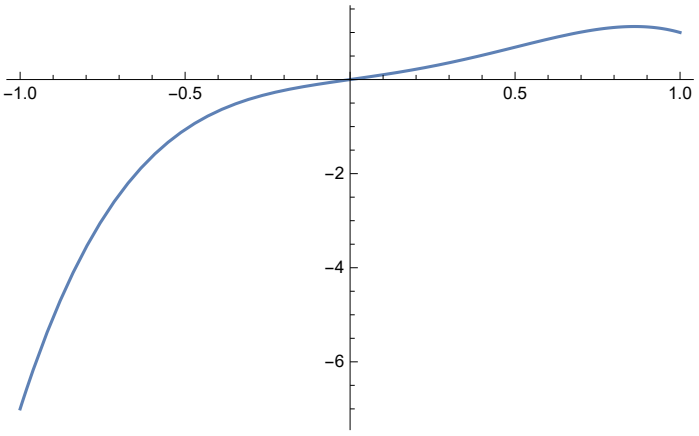


Out[234]=

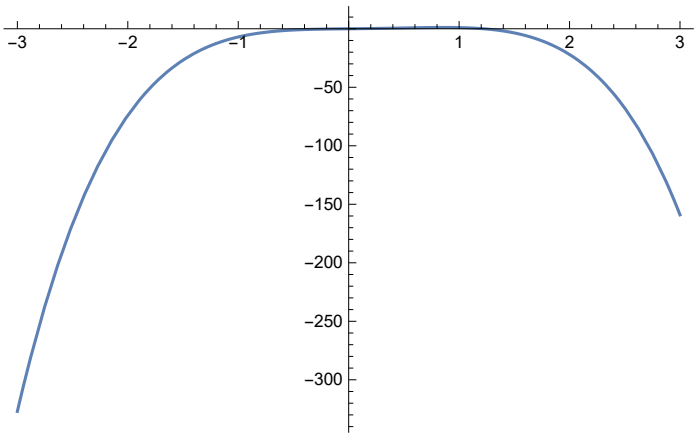


In[235]:=
```
f[x_] := -3 x^4 + 3 x^3 + x;
Plot[f[x], {x, -1, 1}]
Plot[f[x], {x, -3, 3}]
```

Out[236]=

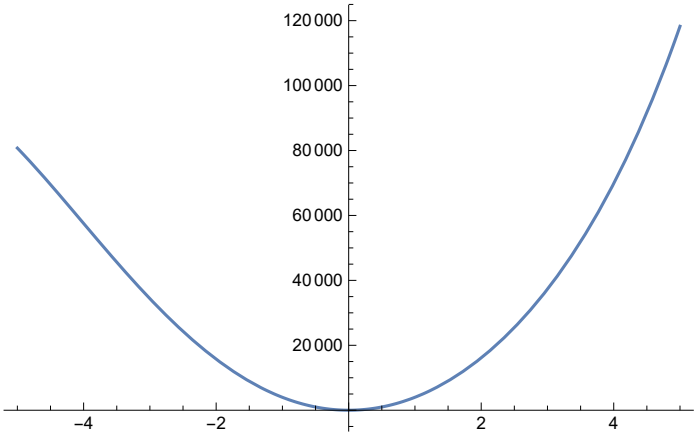


Out[237]=

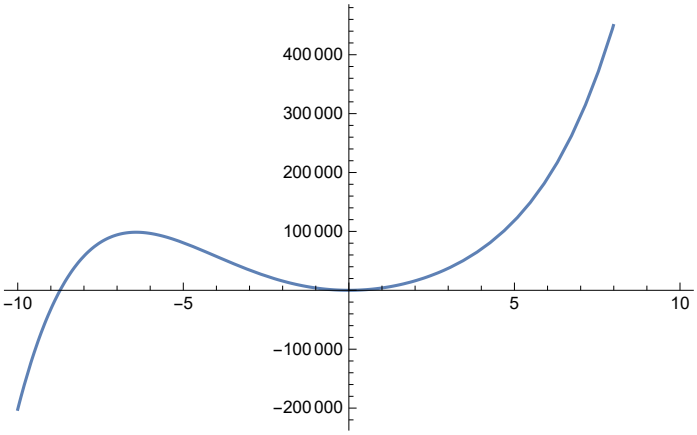


In[238]:=
```
f[x_] := 6 x^5 + 3980 x^2 + x + 5;
Plot[f[x], {x, -5, 5}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

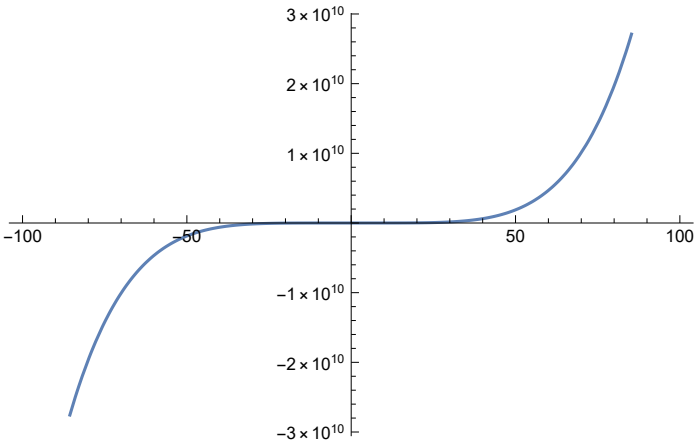
Out[239]=



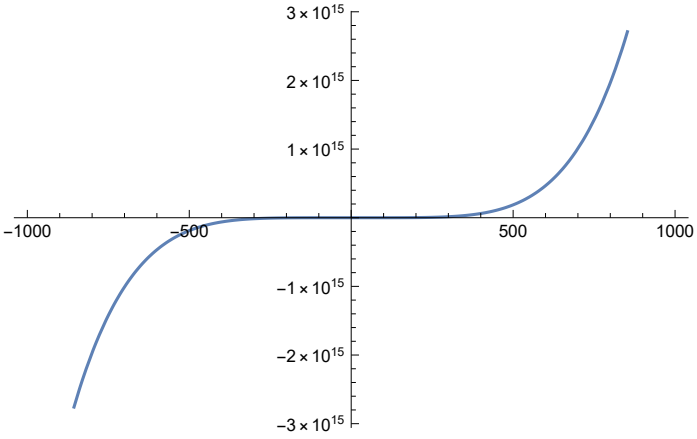
Out[240]=



Out[241]=



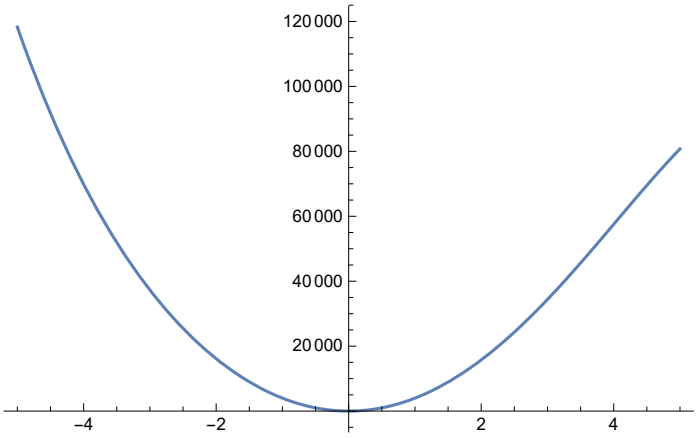
Out[242]=



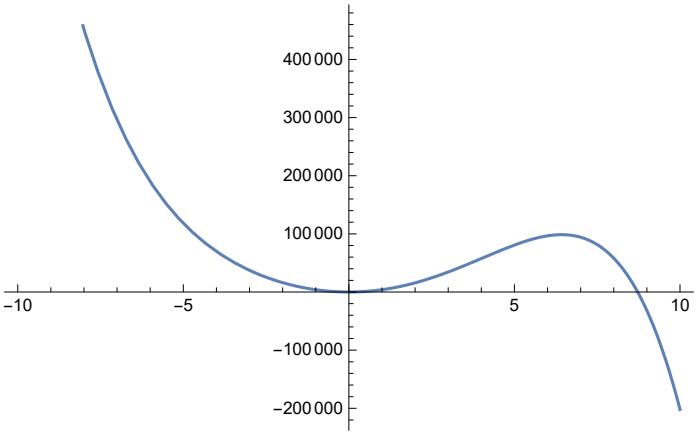
In[243]:=

```
f[x_] := -6 x^5 + 3980 x^2 + x + 5;
Plot[f[x], {x, -5, 5}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

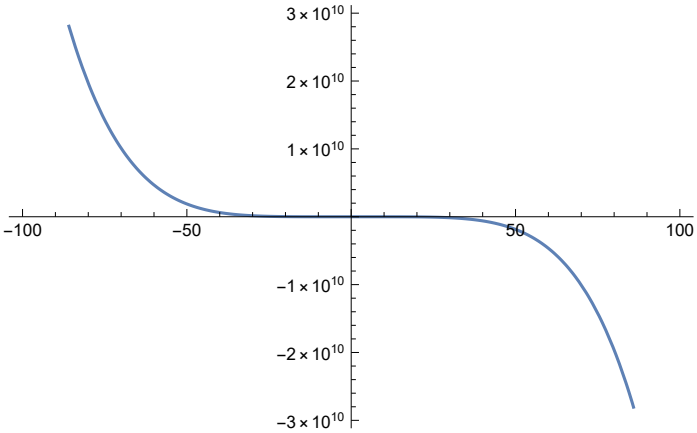
Out[244]=



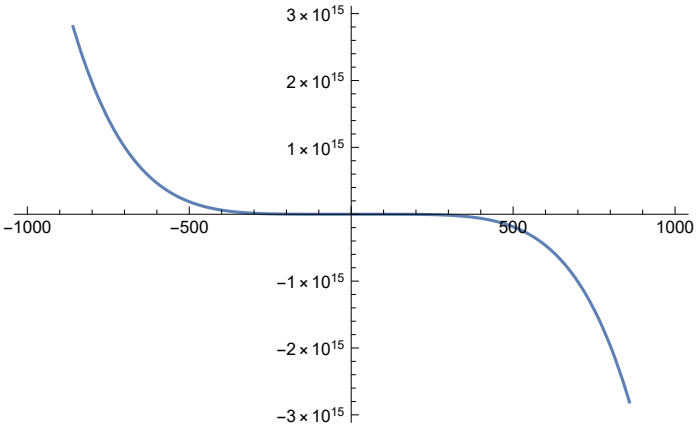
Out[245]=



Out[246]=

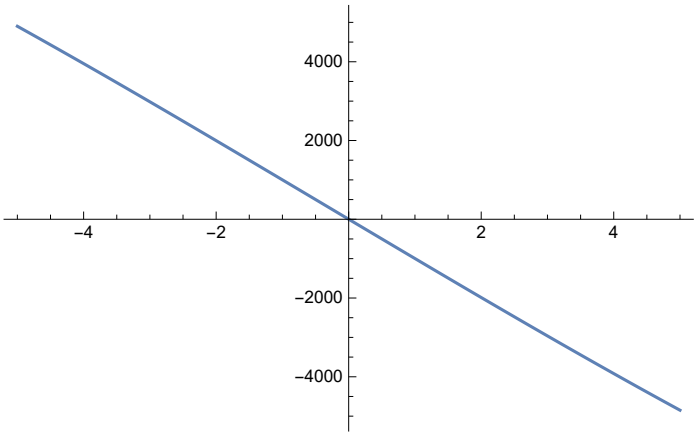


Out[247]=

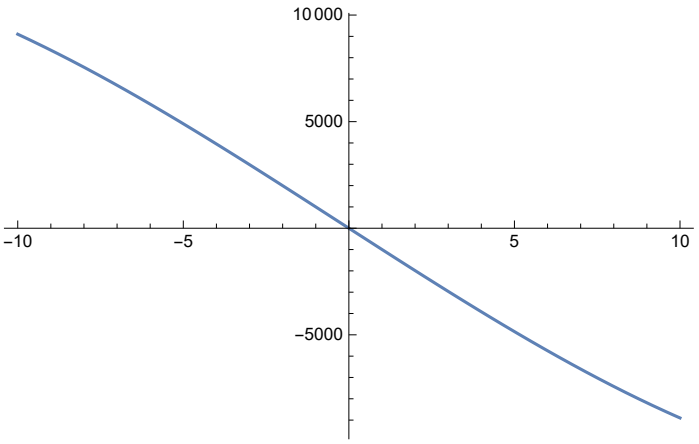


In[248]:=
```
f[x_] := x^3 + x^2 - 1000 x + 1;
Plot[f[x], {x, -5, 5}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

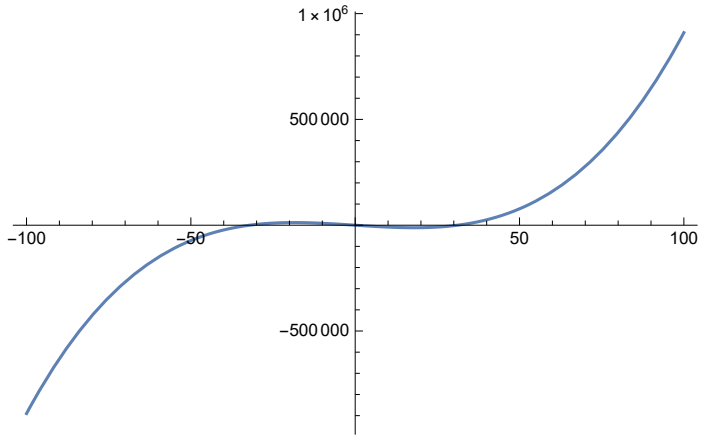
Out[249]=



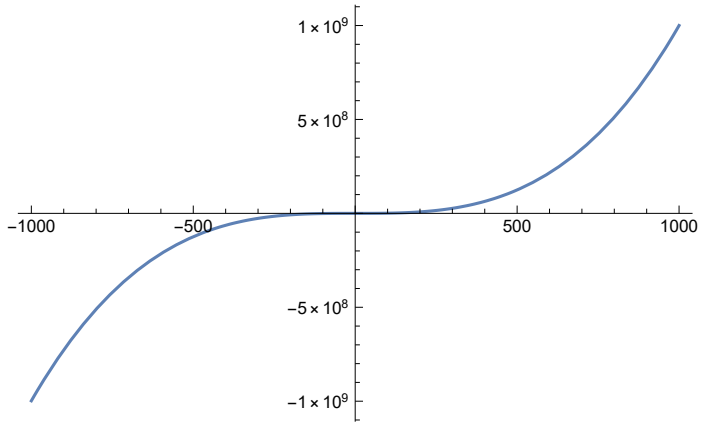
Out[250]=



Out[251]=



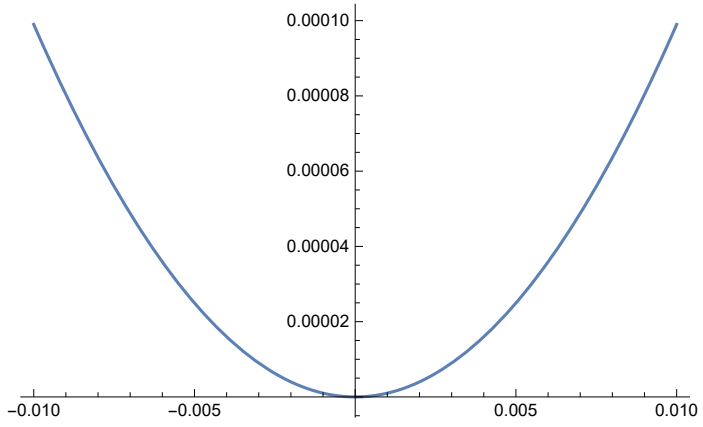
Out[252]=



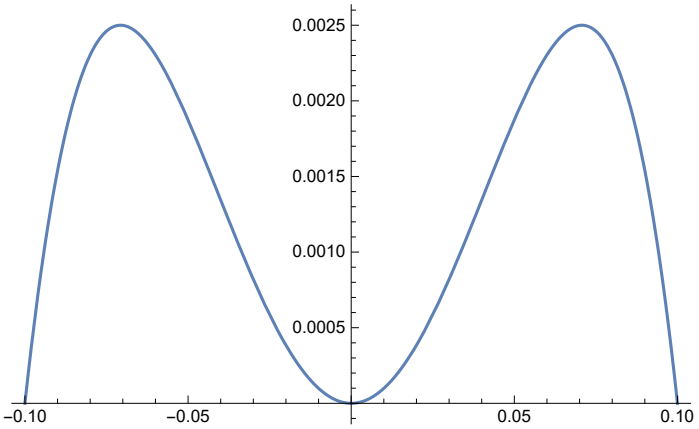
In[253]:=

```
f[x_] := -x^10 + x^2 - 100 x^4 + x^9;
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}]
```

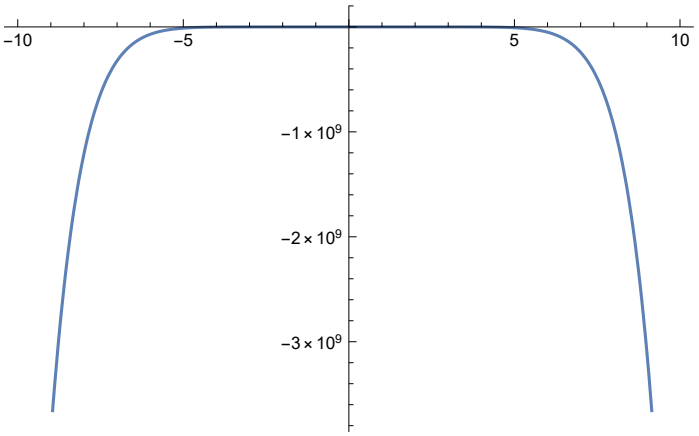
Out[254]=



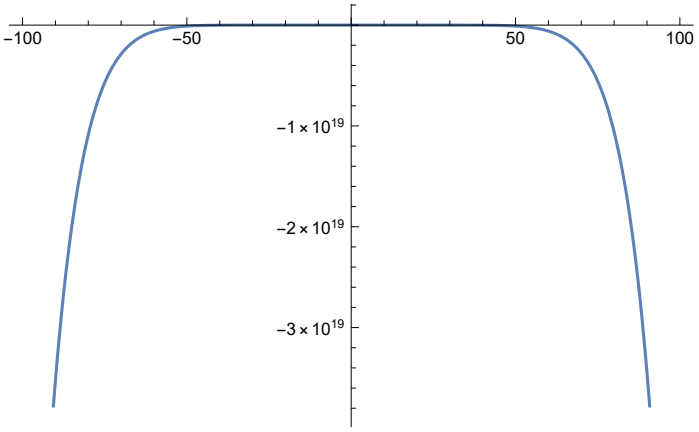
Out[255]=



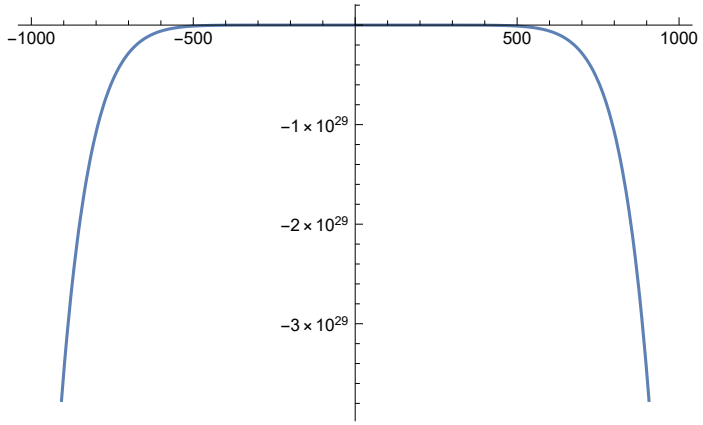
Out[256]=



Out[257]=

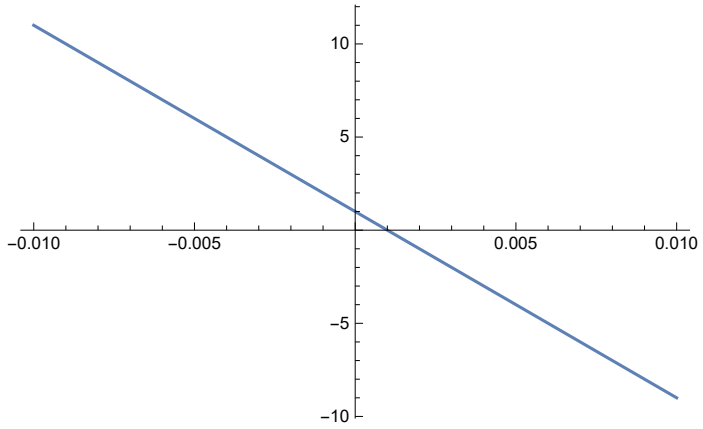


Out[258]=

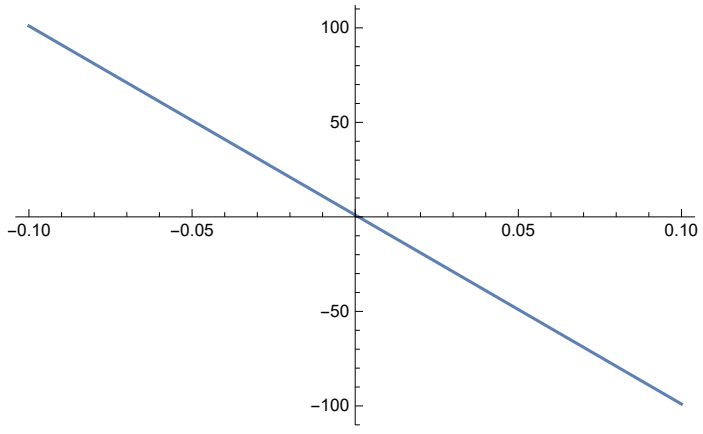


In[259]:=
```
f[x_] := x^3 + x^4 - 1000 x + 1;
Plot[f[x], {x, -0.01, 0.01}]
Plot[f[x], {x, -0.1, 0.1}]
Plot[f[x], {x, -10, 10}]
Plot[f[x], {x, -20, 20}]
Plot[f[x], {x, -100, 100}]
Plot[f[x], {x, -1000, 1000}]
```

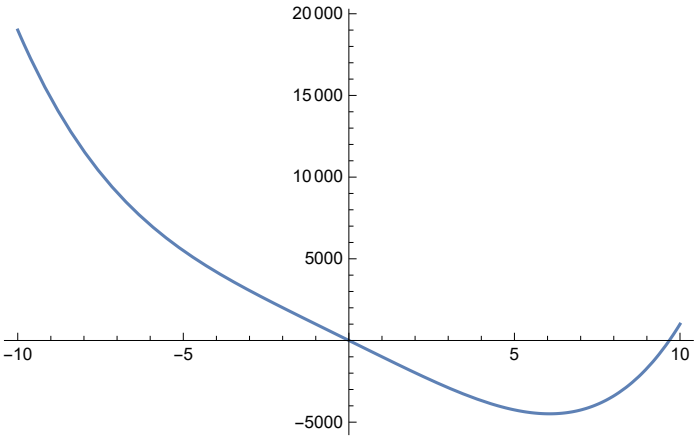
Out[260]=



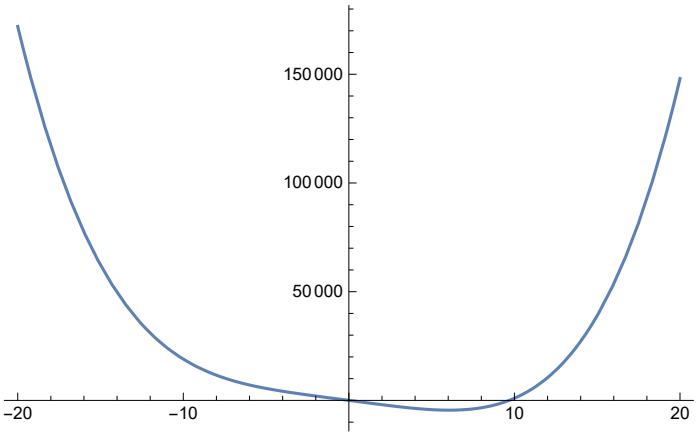
Out[261]=



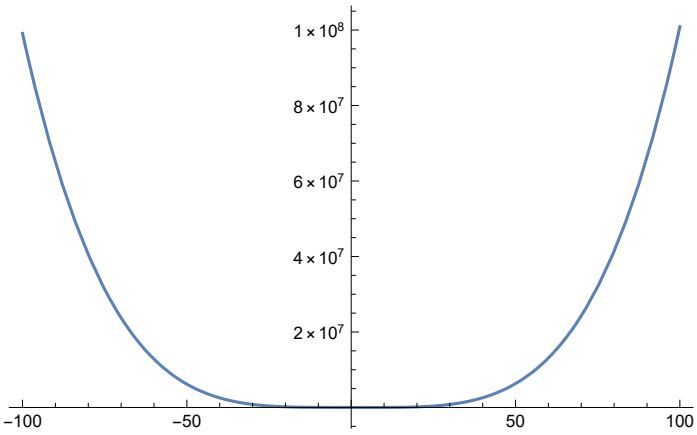
Out[262]=



Out[263]=



Out[264]=



Out[265]=