In[1]:=
```
f[x_, y_] := x^3 + 3 y^2 - 75 x - 9 y^2
```

In[2]:=
```
G[X_] := {D[f[x, y], x], D[f[x, y], y]} /. {x → X[[1]], y → X[[2]]}
```

In[3]:=
```
g[X_, t_, u_] := G[X + t u].u
```

In[4]:=
```
X = {-2, -4};
For[i = 1, i ≤ 20, i++,
 {
  u = G[X] / Norm[G[X]],
  S = NSolve[g[X, t, u] == 0],
  T = Table[X + S[[k]][[1]][[2]] u, {k, 1, 2}],
  V = Table[f[T[[k]][[1]], T[[k]][[2]]], {k, 1, 2}],
  If[V[[1]] > V[[2]], X = T[[1]], X = T[[2]]],
  Print[X]
 }
]
```

```
{-5.41033, -1.40165}

{-4.72733, -0.50521}

{-5.07314, -0.241738}

{-4.95458, -0.086127}

{-5.01273, -0.0418206}

{-4.99219, -0.0148636}

{-5.0022, -0.00723414}

{-4.99865, -0.00257}

{-5.00038, -0.00125132}

{-4.99977, -0.000444508}

{-5.00007, -0.000216443}

{-4.99996, -0.0000768865}

{-5.00001, -0.0000374386}

{-4.99999, -0.0000132992}

{-5., -6.47582 × 10^-6}

{-5., -2.30038 × 10^-6}

{-5., -1.12014 × 10^-6}

{-5., -3.97902 × 10^-7}

{-5., -1.93752 × 10^-7}

{-5., -6.88259 × 10^-8}
```

In[6]:=
```
Plot3D[f[x, y], {x, -6, -4}, {y, -1, 1}]
```

Out[6]=