```
dL_dx1 = 2*2^(1/2) - (20*p2)/(x1 + 2^(1/2)*x2)^2 + p1*((20*2^(1/2))/
(2*x1*x2 + 2^(1/2)*x1^2) - ((2*x2 + 2*2^(1/2)*x1)*(20*x2 +
 20*2^(1/2)*x1))/(2*x1*x2 + 2^(1/2)*x1^2)^2) - (20*p3*x2*(2*x2 +
 2*2^(1/2)*x1))/(2*x1*x2 + 2^(1/2)*x1^2)^2;
dL_dx2 = p1*(20/(2*x1*x2 + 2^(1/2)*x1^2) - (2*x1*(20*x2 +
 20*2^(1/2)*x1))/(2*x1*x2 + 2^(1/2)*x1^2)^2) + p3*(20/(2*x1*x2
 + 2^(1/2)*x1^2) - (40*x1*x2)/(2*x1*x2 + 2^(1/2)*x1^2)^2) -
 (20*2^(1/2)*p2)/(x1 + 2^(1/2)*x2)^2 + 1;
dL_dA1 = p4 + p7;
dL_dA2 = p5 + p8;
dL_dA3 = p6 + p9;
dL_dp1 = (20*x2 + 20*2^(1/2)*x1)/(2*x1*x2 + 2^(1/2)*x1^2) + s1^2 - 20;
dL_dp2 = 20/(x1 + 2^(1/2)*x2) + s2^2 - 20;
dL_dp3 = (20*x2)/(2*x1*x2 + 2^(1/2)*x1^2) + s3^2 - 15;
dL_dp4 = A1 + s4^2 - 5;
dL_dp5 = A2 + s5^2 - 5;
dL_dp6 = A3 + s6^2 - 5;
dL_dp7 = A1 + s7^2 - 1/10;
dL_dp8 = A2 + s8^2 - 1/10;
dL_dp9 = A3 + s9^2 - 1/10;
dL_ds1 = 2*p1*s1;
dL_ds2 = 2*p2*s2;
dL_ds3 = 2*p3*s3;
dL_ds4 = 2*p4*s4;
dL_ds5 = 2*p5*s5;
dL_ds6 = 2*p6*s6;
dL_ds7 = 2*p7*s7;
dL_ds8 = 2*p8*s8;
dL_ds9 = 2*p9*s9;
--------------------
x1* = 0.789
x2* = 0.408
A1* = 0.1
A2* = 0.1
A3* = 0.1
p1* = 0.132
p2* = 0
p3* = 0
p4* = 0
p5* = 0
p6* = 0
p7* = 0
p8* = 0
p9* = 0
s1* = 0
s2* = 2.315
s3* = 3.105
s4* = 2.214
s5* = 2.214
s6* = 2.214
s7* = 0.006
s8* = 0.006
```

```
s9* = 0.006
```

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