梯度下降

**package** ai6;

**public** **class** GradientDescent {//梯度下降

// 经过计算, we expect that the local minimum occurs at x=9/4

**double** x\_old = 0;

**static** **double** *x\_new* = 6; // 从 x=6 开始迭代

**double** gamma = 0.01; // 每次迭代的步长

**double** precision = 0.00001;//误差

**static** **int** *iter* = 0;//迭代次数

//目标函数的导数

**private** **double** derivative(**double** x) {

**return** 4 \* Math.*pow*(x, 3) - 9 \*Math.*pow*(x, 2);

}

**private** **void** getmin() {

**while** (Math.*abs*(*x\_new* - x\_old) > precision){

*iter*++;

x\_old = *x\_new*;

*x\_new* = x\_old - gamma \* derivative(x\_old);

}

}

**public** **static** **void** main(String[] args) {

GradientDescent gd = **new** GradientDescent();

gd.getmin();

System.***out***.println(*iter*+": "+*x\_new*);

}

}

结果：

