

GRADIENT-DESCENT( $f, \mathbf{x}^{(0)}, \gamma, T$ )

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1  sum = 0 //  $n$ -dimensional vector, initially all 0
2  for  $t = 0$  to  $T - 1$ 
3      sum = sum +  $\mathbf{x}^{(t)}$  // add each of  $n$  dimensions into sum
4       $\mathbf{x}^{(t+1)} = \mathbf{x}^{(t)} - \gamma \cdot (\nabla f)(\mathbf{x}^{(t)})$  //  $(\nabla f)(\mathbf{x}^{(t)})$ ,  $\mathbf{x}^{(t+1)}$  are  $n$ -dimensional
5  x-avg = sum /  $T$  // divide each of  $n$  dimensions by  $T$ 
6  return x-avg
```