Here is the derivation of the equation for computing power (in Watt) for climbing up a hill of inclination x % at a speed of s mph. The angle of the incline is $\theta = \tan^{-1}(x/100)$. Here it is assumed that the inclination is the ratio of rise over run. The speed component against gravity is $v = s \cdot \sin\theta$. Hence the power is found from $p = wv = \frac{swx}{\sqrt{x^2+100^2}}$ where w is the total weight. Clearly the power is a linear function of speed and weight, but it is not linear in the inclination x. It is almost linear for small inclinations, under 10%. The exact values are tabulated below for a one pound weight at 1 mph. Simply multiply the "Factor" with the weight in pounds and the speed in mph to get the power in Watt. An example follows the table.

x %	Factor
1	0.019891
2	0.0397761
3	0.0596492
4	0.0795045
5	0.099336
6	0.1191379
7	0.1389042
8	0.1586293
9	0.1783075
10	0.197933
11	0.2175003
12	0.2370039
13	0.2564384
14	0.2757986
15	0.2950791
16	0.314275
17	0.3333813
18	0.3523931
19	0.3713057
20	0.3901146

As an example let us assume that you and your bike and gear weigh 175 lbs and you are climbing a 10% incline at 6 mph. Then your power is found from the table as 0.197933 x 175 x 6 = 207.83 Watt.

Conversion of units:

1 lb = 0.45359 Kg = 9.81 x 0.45359 = 4.4497179 Newton
1 mph = 0.44704 meter/s