Exercise: dB math

Objective: Demonstrate the use of dB math to calculate EIRP and convert from relative to absolute units.

Question 1: Fill in the following table to get acquainted with dB and

Power in Watts	dBm	Power Ratio	dB
1000		1000	
500		500	
100		100	
50		50	
25		25	
1		1	
0,5		0,5	
0,25		0,25	
0,125		0,125	
0,1		0,1	
0,05		0,05	
0,01		0,01	
0,001		0,001	
0,0002		0,0002	

dBm:

Question 2: The Ubiquiti Picostation uses a **6 dBi** internal antenna, and has a maximum output power of **20 dBm**. What is the equivalent isotropically radiated power (EIRP) when operating at maximum power? Please give the answer in **both dBm and mW**.

Question 3: What if the transmit power were reduced to **14 dBm**?

Question 4: How much power (in mW) is **+56 dBm**?

Question 5: A WiFi radio has a receive sensitivity of **-99 dBm**. How much power is that in mW?

A quick review

Here is a reminder of commonly used dB values:

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+10 dB = 10 times the power
-10 dB = one tenth power
 +3 dB = double power
 -3 dB = half the power
```

For example:

```
some power + 10 dB  = 10 times the power
some power - 10 dB  = one tenth power
some power + 3 dB   = double power
some power - 3 dB   = half the power
```