is doubled, i.e. increased by 6 dB. This may ... amplifiers!

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room thermometer

Using a National LM3911 IC, a 1 mA meter and a few resistors it is a simple matter to construct a thermometer to measure over the temperature range −20° to +50°C, which should be adequate for all but polar climates! As the circuit is intended as a room thermometer the entire circuit operates at the temperature which is being measured, so the resistors used should be low-temperature coefficient types to maintain the accuracy of the circuit.

To calibrate the thermometer the meter scale must first be marked out linearly from zero = −20° to full-scale = +50°. With P2 set to its mid-position the circuit should be placed in a freezer or the freezing compartment of a refrigerator set to −20°C and P1 should be adjusted until the meter reads −20. The circuit should then be placed in a temperature of +50°C and P2 adjusted until the meter reads 50. Of course it is also possible to mark out the scale from 0°F to 120°F and calibrate zero and full-scale accordingly.

P1 and P2 interact to a small extent, so it may be necessary to repeat the procedure several times until both the −20 and +50 readings are accurate.

As the IC contains its own stabiliser the supply voltage is not critical provided the value of R1 is chosen so that about 3 mA flows through it. The value of R1 is given by $R1 = \frac{V_b - 6}{3}$ (kΩ).