

A DEGREE OF CONFUSION

As a teacher one can always rely on one's pupils to set one thinking.

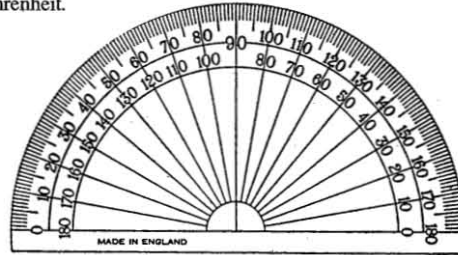
Question: Why are there two scales of 'degrees' around the edge of a protractor?

Answer: One is degrees Celsius and one is degrees Fahrenheit.

This reply made me wonder whether there are any positions where this *is* the case (i.e. coincident numbers on the two scales which could represent the same temperature in degrees Celsius and degrees Fahrenheit).

When does this happen:

- (a) on a 180° protractor;
- (b) on a 360° protractor?



This is readily solved by simultaneous equations, using the fact that $F = \frac{9}{5}C + 32$, and of course the two readings must add up to 180, in case (a), or 360, in case (b).

The (C, F) values are (a) $(52\frac{2}{7}, 127\frac{1}{7})$ and (b) $(117\frac{1}{7}, 242\frac{6}{7})$.

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