

(d) It is suggested that the relationship between x_1 , x_2 , L , T and T_0 is

$$k(x_1 - x_2) = L(T - T_0)$$

where k is a constant.

(i) Using your data, calculate two values of k .

first value of k =

second value of k =

[1]

(ii) Justify the number of significant figures that you have given for your values of k .

.....

 [1]

(e) It is suggested that the percentage uncertainty in the values of k is 20%.

Using this uncertainty, explain whether your results support the relationship in (d).

.....

 [1]

(f) (i) Describe **four** sources of uncertainty or limitations of the procedure for this experiment.

For any uncertainties in measurement that you describe, you should state the quantity being measured and a reason for the uncertainty.

1

.....

2

.....

3

.....

4

.....

[4]

(ii) Describe **four** improvements that could be made to this experiment. You may suggest the use of other apparatus or different procedures.

1

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2

.....

3

.....

4

.....

[4]

[Total: 20]

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