

Preliminary results for inverse square law

Trial 1	
$d / \text{cm}$	$E_v / \text{lux}$
22	917
25	725
27	629
30	510
33	406
35	355
38	298
40	264
42	239
46	208
50	171
55	144
60	121
65	107
70	93
75	81

Trial 2	
$d / \text{cm}$	$E_v / \text{lux}$
15	968
18	750
20	637
30	334
35	259
40	205
50	139
60	105
70	84
80	70
90	59
100	51

pd = 13.39 V  
Background  
intensity reading  
not taken. Suggest  
you assume a  
value of 10 lux

Questions

- Do these sets of readings fit with the inverse square law?
- What are the values of  $k$  and  $\varepsilon$  in  $E_v = \frac{k}{(d + \varepsilon)^2}$ ?

Preliminary results for variation of intensity with pd

$V / \text{V}$	$E_v / \text{lux}$
6.0	20
8.1	58
9.4	91
10.1	127
12.1	221
12.9	274
13.4	307

$E_v$  readings corrected  
for background.

Questions

- By drawing a graph of  $\ln E_v$  against  $\ln V$ , show that these readings support a relationship of the form  $E_v = kV^n$ .
- Use your graph to determine the values of  $k$  and  $n$ .