

Yr 11 Add Maths Linear Law and Functions Homework

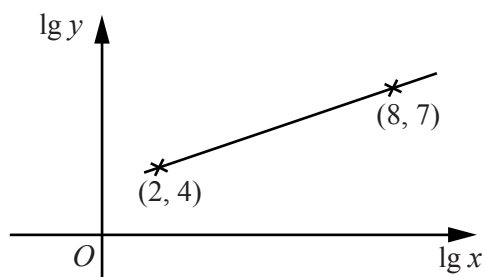
- 1) (i) Sketch the graph of $y = |3 + 5x|$, showing the coordinates of the points where your graph meets the coordinate axes. [2]
- (ii) Solve the equation $|3 + 5x| = 2$. [2]

2) Given that $p = \log_q 32$, express, in terms of p ,

- (i) $\log_q 4$, [2]
- (ii) $\log_q 16q$. [2]

3) Solve the equation $|7x + 5| = |3x - 13|$. [4]

4)



The variables x and y are related in such a way that when $\lg y$ is plotted against $\lg x$ a straight line graph is obtained as shown in the diagram. The line passes through the points $(2, 4)$ and $(8, 7)$.

- (i) Express y in terms of x , giving your answer in the form $y = ax^b$, where a and b are constants. [5]

Another method of drawing a straight line graph for the relationship $y = ax^b$, found in part (i), involves plotting $\lg x$ on the horizontal axis and $\lg(y^2)$ on the vertical axis. For this straight line graph what is

- (ii) the gradient, [1]
- (iii) the intercept on the vertical axis? [1]

5) Solve the equation $|5x + 7| = 13$. [3]

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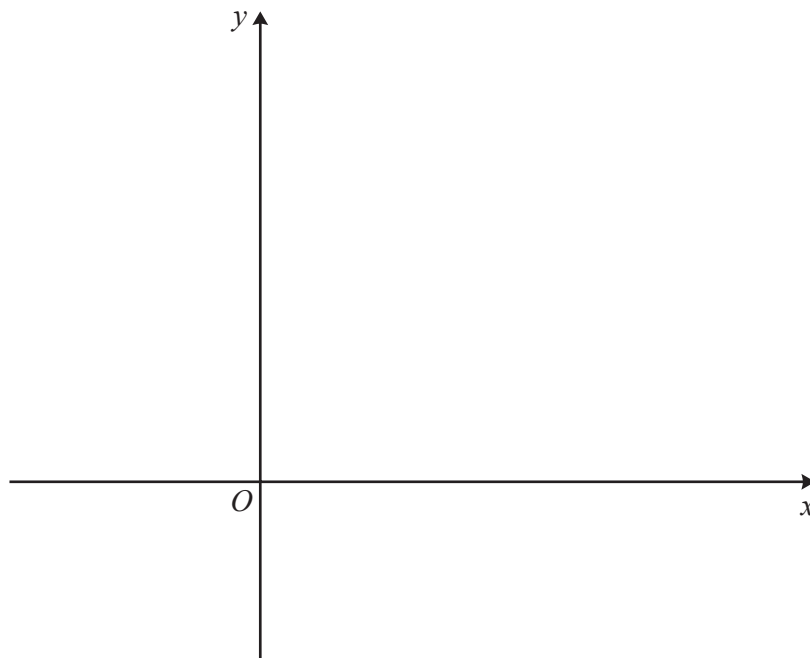
- 6) The table shows experimental values of two variables x and y .

x	1	2	3	4
y	9.41	1.29	-0.69	-1.77

It is known that x and y are related by the equation $y = \frac{a}{x^2} + bx$, where a and b are constants.

- (i) A straight line graph is to be drawn to represent this information. Given that x^2y is plotted on the vertical axis, state the variable to be plotted on the horizontal axis. [1]
- (ii) On the grid opposite, draw this straight line graph. [3]
- (iii) Use your graph to estimate the value of a and of b . [3]
- (iv) Estimate the value of y when x is 3.7. [2]

- 7) (i) Sketch the graph of $y = |4x - 2|$ on the axes below, showing the coordinates of the points where the graph meets the axes. [3]



- (ii) Solve the equation $|4x - 2| = x$. [3]