Equation of a Straight Line

1. State the gradient and the y intercept of each line below:

a. $y = 3x + 7$ b. $y = 3x - 10$ c. $y = 5x - 12$ d. $4y = 6x + 8$

e. $6y - 5x = 12$ f. $7x + 5y = 12$ g. $3x + 2y + 8 = 0$ h. $6x + 7y - 3 = 0$

2. Find the gradient of the lines joined by the points:

a. $(2, 3)$ and $(5, 12)$ b. $(3, 1)$ and $(5, 9)$ c. $(8, 2)$ and $(6, 12)$

d. $(6, 3)$ and $(9, 10)$ e. $(5, 1)$ and $(3, 7)$ f. $(4, 9)$ and $(2, 14)$

3. Find the equation of the line joined by the points in question 2.

4. The price of a tax fare is £1.50 per mile plus £2.80 starting rate.

a. Copy and complete the table below.

Distance (D)	1	2	3	4	5		30
Price (P)							

b. The price of the taxi fare is linear. Find the equation of the line that describes the price of the journey, give your answer in terms of D and P.

c. A journey cost came to £122.80. How far was the journey?

5. Teachers in Chemistry and Physics ploted the results from their latest prelim results on a scatter graph and drew a line of best fit.
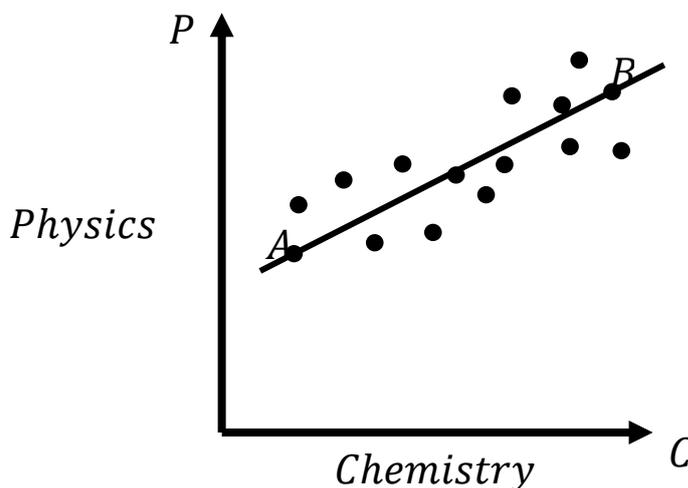
Student A got 17% in their Chemistry prelim and 42% in their Physics prelim.
Student B got 97% in their chemistry prelim and 82% in their Physics prelim.

a. Find the gradient of the line of best fit.

b. Find the equation of the line of best fit. Give your answer in terms of C and P.

c. Student C did not sit the Physics prelim. Use your equation to estimate their Physics result if they got 60% in their Chemistry.

1.

a. $m = 3, (0, 7)$ b. $m = 3, (0, -10)$ c. $m = 5, (0, -12)$ d. $m = \frac{3}{2}, (0, 2)$

e. $m = \frac{5}{6}, (0, 2)$ f. $m = -\frac{7}{5}, \left(0, \frac{12}{5}\right)$ g. $m = -\frac{3}{2}, (0, -4)$ h. $m = -\frac{6}{7}, \left(0, \frac{3}{7}\right)$

2.

a. $m = 3$ b. $m = 4$ c. $m = -2$ d. $m = \frac{7}{3} - 11$

e. $m = -3$ f. $m = -\frac{5}{2}$

3. Find the equation of the line joined by the points in question 2.

a. $y = 3x - 3$ b. $y = 4x - 11$ c. $y = -2x + 12$ d. $y = \frac{7}{3}x$

e. $y = -3x + 8$ f. $y = -\frac{5}{2}x + 19$

4.

a.

Distance (D)	1	2	3	4	5		30
Price (P)	£4.30	£5.80	£7.30	£8.80	£10.30		£47.80

b. $p = 1.5d + 2.8$

c. 80 miles

5.

a. $m = \frac{1}{2}$

b. $P = \frac{1}{2}C + \frac{67}{2}$

c. 63.5%