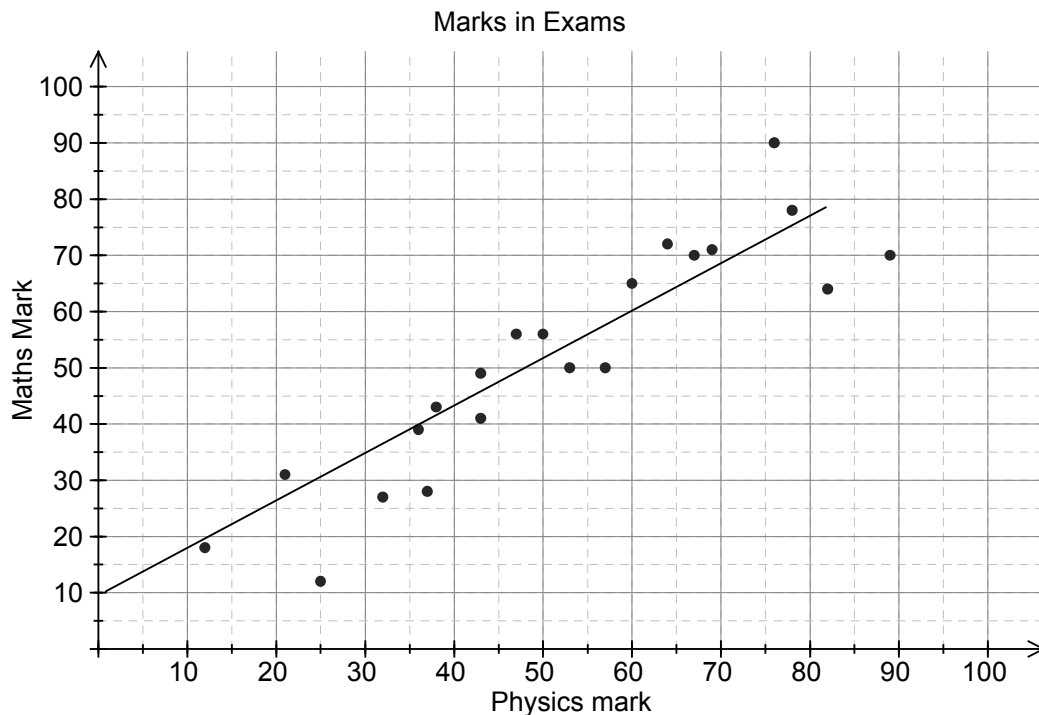


Credit Mathematics – Homework I

Non-calculator section:

- Evaluate $\frac{2}{5}$ of $3\frac{1}{2} + \frac{4}{5}$
- (a) Expand the brackets and simplify $(3x - 1)^2 + 6x$

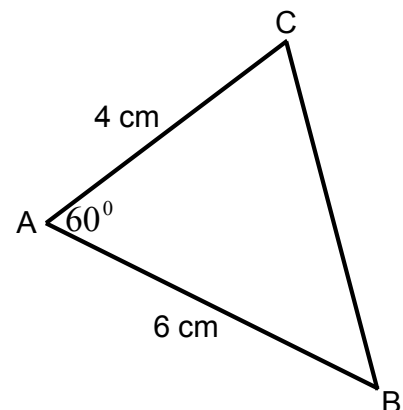
(b) Express as a single fraction $\frac{3}{a} + \frac{4}{a^2}$ $a \neq 0$
- The scattergraph below shows the Maths and Physics marks of a group of pupils in a third year examination. A line of best fit has been drawn on the diagram. The points (0,10) and (60,60) both lie on this line.



- Describe the relation between the Physics and Maths marks.
 - Find the equation of this line of best fit.
 - Use your equation to estimate the Maths mark for a pupil who scored 72 in Physics.
- Solve the inequation $6 - \frac{2x}{3} > 2(x - 1)$
 - The diagram opposite shows triangle ABC. $AB = 4$ cm, $AC = 6$ cm and angle $BAC = 60^\circ$.

Given $\cos 60^\circ = \frac{1}{2}$, show that $BC = 2\sqrt{7}$
 - $f(x) = 3x^2 + 5x - 1$ and $g(x) = 7x + 7$.

Find the values of x for which $f(x) = g(x)$.



7. (a) Express $\frac{2\sqrt{5}}{\sqrt{30}}$ with a rational denominator.

(b) Simplify $\frac{2n^4 \times 6n^{-1}}{3n^2}$

Calculator section:

8. Solve the equation $4\tan 35^\circ + 6\cos x^\circ = 2.5$ $0^\circ \leq x^\circ \leq 360^\circ$

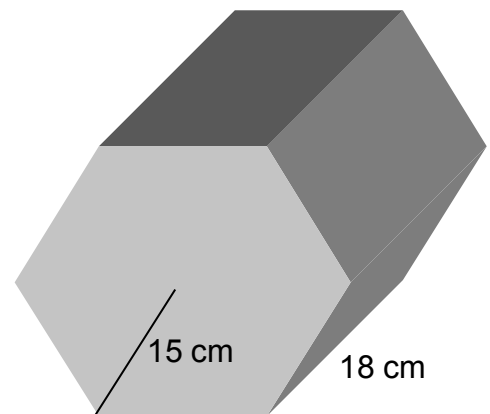
9. The knowledge and reasoning marks of a 4th year class in an exam are

<u>Knowledge</u>						<u>Reasoning</u>					
51	51	58	60	68	71	33	43	47	51	51	58
80	80	80	82	82	82	60	64	64	64	67	69
87	89	93	96	98	100	71	80	80	86	87	95

- (a) Show this information in a suitable statistical diagram
 (b) Make two valid statements comparing the Knowledge and Reasoning marks of the class.

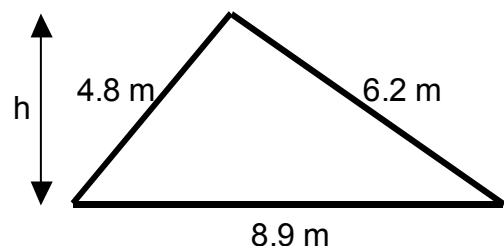
10. A solid prism has a cross-section in the shape of a regular hexagon, with measurements as shown.

Calculate the volume of this prism.



11. The diagram opposite shows a joist in a roof.

Calculate , h, the height of the roof.



12. A number pattern is given below

- 1st term: $3^2 - 1^2$
 2nd term: $4^2 - 2^2$
 3rd term: $5^2 - 3^2$

- (a) Write down a similar expression for the 4th term.
 (b) Hence find the nth term in its simplest form.