Credit Mathematics – Homework C

Non-calculator section:

1. Find the value of $4.6 - 0.046 \times 30$

2. Express as a single fraction $\frac{1}{2} + \frac{2}{3} \div 1\frac{1}{5}$

3. $f(x) = x^2(x - 4)$. Calculate the value of $f(-2)$.

4. A relationship between T, L and H is such that T varies directly as L and inversely as the square of H.
   If L is doubled and H is halved, what is the effect on T?

5. Express $P = \frac{u^2 + a}{t}$ in terms of u.

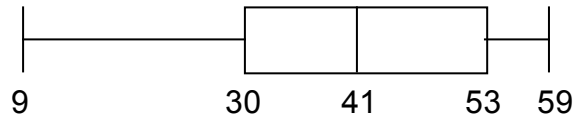
6. (a) The 17 pupils in class 1A sat a test. The marks are shown in the stem and leaf diagram below.

1	7 7 9
2	0 0 0 4 5
3	1 2 6 7
4	4 7 9
5	3 4

1 | 4 represents 14, n = 17

   (i) Find the median mark
   (ii) Show the information in a boxplot.

   (b) Class 1B sat the same test. A boxplot of their marks is shown below.

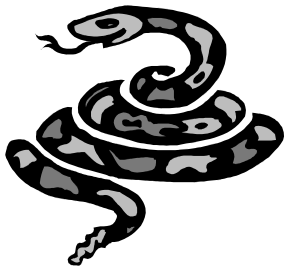


   Make two valid comparisons between class 1A and class 1B.

Calculator section:

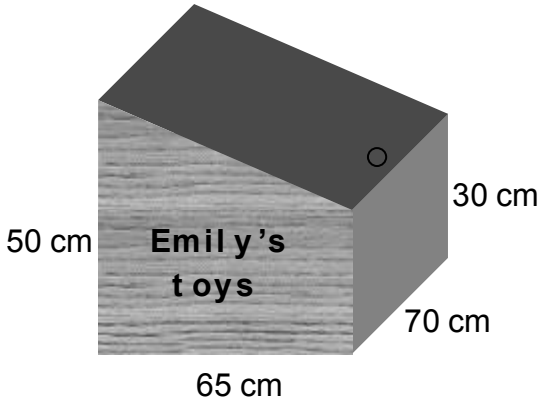
7. David was given a snake as a Christmas present in 2006. The snake was 0.6 metres long. By Christmas 2007 the snake had grown to 0.78 metres in length.

   If the snake continues to grow at the same percentage rate, how long will it be by Christmas 2011?



8. Express as a single fraction $\frac{2}{x} + \frac{5}{x^2}$ $\quad x \neq 0$

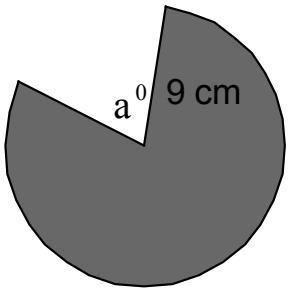
9. The diagram below shows a toy box. The cross-section of the box is in the shape of a rectangle and a triangle.



Calculate the volume of the toy box.

10. A triangle ABC has area 34 cm^2. AB = 8 cm and AC = 13 cm. Calculate two possible sizes of angle BAC.

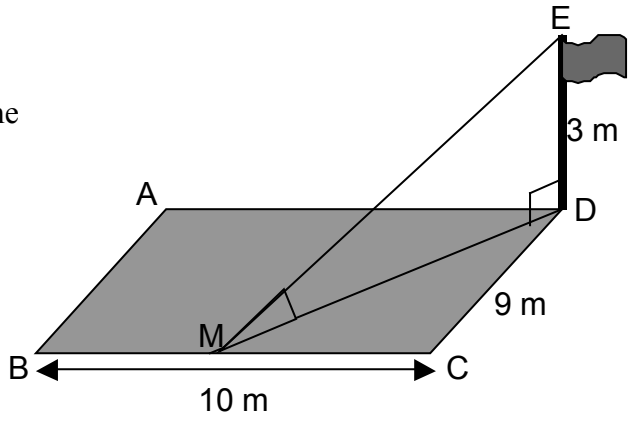
11. The sector opposite has a radius of 9 cm and an area of 210 cm^2.
Calculate the size of angle a^0.



12. A flagpole DE, 3 metres high, is situated at the corner of a rectangular field, ABCD.

The flagpole casts a shadow over the field.
The shadow reaches M, the midpoint of BC.

Calculate the size of the shaded angle.



13. The diagram opposite shows the graph of the parabola

$$y = 3x^2 - 24x$$

(a) Find the coordinates of the point A.
(b) Find the coordinates of the minimum turning point of the parabola.