

S4 Credit – Homework 4

Non-calculator section:

1. Evaluate $31 - 0.046 \times 200$

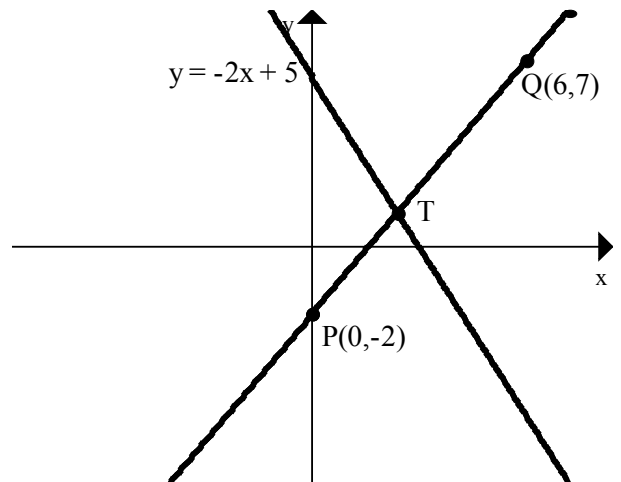
2. $P = \frac{x + 3xy}{x - y}$. Find P when $x = -2$ and $y = -4$.

3. Express as a single fraction in its simplest form $\frac{4}{3x} + \frac{2}{x^2} \quad x \neq 0$

4. Express with a rational denominator $\frac{\sqrt{2}}{\sqrt{10}}$

5. For the diagram opposite find

- (a) the equation of the line PQ.
- (b) The point of intersection, T, of the line PQ and the line with equation $y = -2x + 5$.



6. (a) Simplify $x^{\frac{2}{3}}(2x^{\frac{4}{3}} - \frac{4}{x^{\frac{5}{3}}})$

(b) Evaluate $32^{-\frac{4}{5}}$

7. Solve the equation $3x^2 = x + 10$

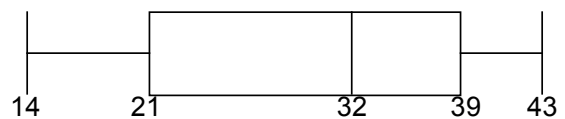
8. The marks of 2 groups of pupils in a maths test are shown below.

Group A

1	1	3	3	9			
2	5	6	6				
3	4	7	8	8	9	9	
4	0	2	2	3	5	6	6

3 | 2 represents 32 n = 20

Group B



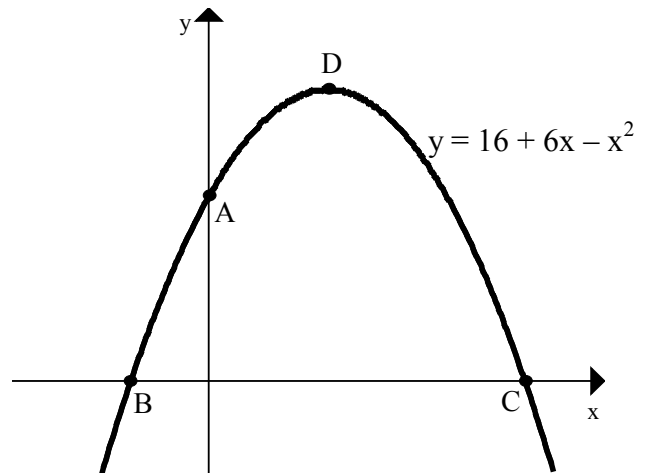
Which group of pupils had the higher semi-interquartile range?

Calculator section:

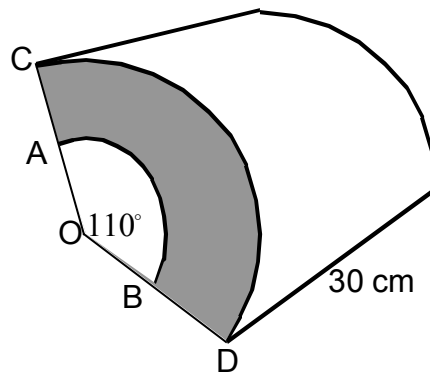
9. Solve the equation $\sin 45^\circ + 4\cos x^\circ = 0$ $0^\circ \leq x^\circ \leq 360^\circ$

10. A parabola has equation $y = 16 + 6x - x^2$.

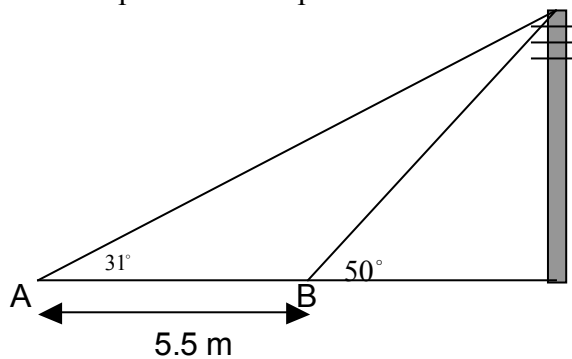
- (a) Find the coordinates of A.
- (b) Find the coordinates of B and C.
- (c) Find the coordinates of D, the maximum turning point of the parabola.



11. The diagram shows a prism whose cross-section is the area between two sectors. One sector has radius $OA = 12$ centimetres and the other has radius $OC = 15$ centimetres. Calculate the volume of this prism.



12. From A the angle of elevation to the top of a telegraph pole is 31° . From B the angle of elevation to the top of the same pole is 50° .



Calculate the height of the telegraph pole.