

### S4 Homework – Week 19

Q1. Solve the following:

a.  $3(x + 2) > x - 5$

b.  $5(4 - 2m) < 3m + 6$

Q2. A straight line passes through the point (5, -3) and is parallel to the line  $4y - 3x = 2$ . Find the equation of the line.

Q3. Solve the following correct to 1 decimal place:

a.  $y = 2x^2 + 3x - 4$

b.  $y = 5x^2 - 2x - 1$

Q4. Student exam results were collected. One before a revision class and one after. The results are shown below:

	Mean	Standard Deviation
Before Revision	55	2.5
After Revision	67	1.89

Write two statements comparing the assessment scores.

Q5. Calculate the magnitude of the following vectors:

a.  $\mathbf{u} = \begin{pmatrix} 3 \\ 2 \\ -1 \end{pmatrix}$

b.  $\mathbf{v} = \begin{pmatrix} 0 \\ -5 \\ 1 \end{pmatrix}$

c.  $\mathbf{u} - \mathbf{v}$

Q6. Write down the co-ordinates of the turning point in the following parabolas:

a.  $y = (x + 3)^2 - 2$

b.  $y = 6 - 3(x + 5)^2$

c.  $y = x^2 + 10x - 3$

Q7. John measured his height as 112cm in 2018. He grew by 8cm in 2019. Express his growth as a percentage of his original height.

Q8. Ten waiting times (mins) for taxis were measured and recorded as:

5, 12, 8, 3, 7, 10, 6, 8, 11, 14

- Find the median.
- Calculate the lower quartile.
- Find the semi-interquartile range.

Q9. Simplify:

a.  $\frac{7}{x-2} - \frac{5}{x}$

b.  $\frac{3a^3d^5}{g^9} \times \frac{g^{11}}{12a^5d}$

c.  $\frac{(x-9)^2}{\sqrt{p}} \div \frac{x+3}{p^3}$

Q10. Simplify:

a.  $\sqrt{20} + 4\sqrt{5} - \sqrt{45}$

b.  $3\sqrt{6} \times 2\sqrt{2}$

c.  $(2\sqrt{7})^2$

Q11. Let  $f(x) = 2x + 6$  and  $g(x) = 6x - 2$ , solve for  $f(x) > g(x)$

Q12. Change the subject of the formula to A:

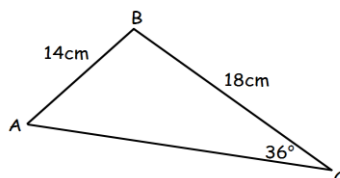
a.  $2A^2B = M$

b.  $B^2A + c = y$

c.  $AB + AC = D$

Q13. State the nature of the turning point of the parabola  $y = 5 - 2x - 3x^2$  (1 mark)

Q14. A parabola has the equation  $y = (x - 3)^2 + 5$ , write down the equation of the axis of symmetry. (1 mark)



Q15. Calculate the size of angle BAC :