YEAR 13 – MATHEMATICS (Week 13)

Subject	**Mathematics**
Class/ Section	**Year 13 – Batch A, B and C**
Week	**22nd November to 26th November 2020**
Work send to students by	**Group email / Google classroom / Zoom**
Total number of lessons per week	**3**
Units	**Pure Mathematics – Year 2** **Chapter 9 – Differentiation**
Lesson 1 – Live Zoom lesson	**9.5 – The quotient rule** **Learning objective – To differentiate functions using the quotient rule.** **Intended Learning Outcomes** --Students will be able to differentiate the quotient of two functions. If $y = u/v$, then $dy/dx = [v(du/dx) – u(dv/dx)] / v^2$ where u and v are functions of x. The quotient rule in function notation is : If $f(x) = g(x) / h(x)$, then $f'(x) = [h(x)g'(x) – g(x)h'(x)] / ((h(x))^2$
Tasks	To complete the questions assigned from the Textbook (pdf) in their notebook. Students will be put in break out rooms during Zoom lesson to encourage collaborative learning.
Resources	1 Power point presentation 2 Pure Mathematics Year 2 3 https://www.physicsandmathstutor.com/ 4 https://www.drfrostmaths.com/ 5 https://www.examsolutions.net/

Lessons 2 –Live Zoom lesson **Tasks** **Resources**	**9.6 – Differentiating trigonometric functions** **<u>Learning objective</u> – To differentiate trigonometric functions.** **<u>Intended Learning Outcomes</u>** --Students will be able to combine all the rules learnt and apply them to trigonometric functions to obtain standard results. If y = tan kx, then dy/dx = k $\sec^2$ kx. If y = cosec kx, then dy/dx = -k cosec kx cot kx. If y = sec kx, then dy/dx = k sec kx tan kx. If y = cot kx, then dy/dx = -k cosec^2 kx. --Students will be able to differentiate expressions involving exponentials and logarithms To complete the questions assigned from the Textbook (pdf) in their notebook. Students will be put in break out rooms during Zoom lesson to encourage collaborative learning. 1. Power point presentation 2. Pure Mathematics Year 2 3. https://www.physicsandmathstutor.com/ **4.** https://www.drfrostmaths.com/ **5.** https://www.examsolutions.net/
Lesson 3–Live Zoom lesson **Tasks** **Resources**	**9.7 – Parametric differentiation** **9.8 – Implicit differentiation** **<u>Learning objective</u> – To differentiate parametric equations and to differentiate functions which are defined implicitly.** **<u>Intended Learning Outcomes</u>** --Students will be able to find the gradient at a given point without converting to Cartesian form by using a variation of chain rule. If x and y are given as functions of a parameter, t: dy/dx = (dy/dt) / (dx/dt). --Students will be able to understand that some equations are difficult to rearrange into the form y = f(x) or x = f(y). These equations can be differentiated implicitly without rearranging them. d/dx(f(y)) = f'(y)dy/dx. Differentiating implicit equations will usually be given in terms of both x and y. To complete the questions assigned from the Textbook (pdf) in their notebook. Students will be put in break out rooms during Zoom lesson to encourage collaborative learning. 1 Power point presentation 2 Pure Mathematics Year 2 3 https://www.physicsandmathstutor.com/ 4 https://www.drfrostmaths.com/ 5 https://www.examsolutions.net/