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| **Achievement Standard 2.7 - Calculus** |
| Apply calculus methods in solving problems 5 credits External |
| **Achievement:** | **I can** | **Theta** | **Nulake** | **Links** |
| find derivatives | 14.02-14.06 | 79-82 | [finding derivatives](https://www.youtube.com/watch?v=54KiyZy145Y) |
| understand the link between derivatives and gradients | 14.01 | 75 |  |
| find the gradient at a given point | 15.01 | 84 | [tangent at a point](http://ionamaths.weebly.com/27-calculus.html) |
| find the point where the gradient has a given value | 15.02 | 85 | [finding points given gradient](https://www.youtube.com/watch?v=M6bP-XGCxF0) |
| graph gradient functions |  | 70-73 | [graphing gradient functions](https://www.youtube.com/watch?v=BY0u3BAgLlc) |
| given f(‘x) and a point, find f(x) | 16.03 | 101-102 | [finding function](https://www.youtube.com/watch?v=yeSZN19b2kg)  |
| **Merit:** | **I can** | **Theta** | **Nulake** |  |
| locate turning points where f’(x) = 0  | 15.05 | 86-90 | [turning points](https://www.youtube.com/watch?v=L-uFhB3iaPA) |
| find the equation of tangent from the gradient function | 15.03 | 83-84 | [tangent at a point](http://ionamaths.weebly.com/27-calculus.html) |
| solve rate of change problems (including kinematics) | 17.01, 17.02 | 98-100 | [differentiating kinematics](https://www.youtube.com/watch?v=TpWvMBNWEsk) |
| understand increasing and decreasing functions | 15.04 | 91-92 |  |
| use maximum and minimum in context | 15.06 | 93-97 |  |
| graph integral functions |  | 104 |  |
| **Excellence:** | **I can** | **Theta** | **Nulake** |  |
| form calculus equation | 15.06 | 93-97 |  |
| use optimization | 15.06 | 93-97 | [optimization](https://www.youtube.com/watch?v=Zq7g1nc2MJ8) |
| solve rate of change problems | 17.01 | 85 |  |
| identify where functions are increasing/decreasing | 15.04 | 91-92 | [increasing/decreasing functions](https://www.youtube.com/watch?v=6YM3TrudIzQ) |
| determine nature of turning points | 15.05 | 86-90 |  |
| use kinematics | 17.02, 17.03, 17.04 | 98-100108-112 |  |