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| **H Unit 2: Graphs** | | **Year 10 Road Map** | | | | |
| In this unit you will learn about number. The aims are as follows:  **LG1**: Knowledge **LG2**: Application **LG3**: Skills  Assessment Grade: | | | | | | |
|  | **Learning Goals/Outcomes/Content** | | Video clips | R A G |  |  |
| **2a Graphs: the basics and real-life graphs** | | | | | | |
| 1 | Identify and plot points in all four quadrants; | | 8, 113 |  |  |  |
| 2 | Find the coordinates of points identified by geometrical information. | | 113 |  |  |  |
| 3 | Draw and interpret straight-line graphs for real-life situations, including ready reckoner graphs, conversion graphs, fuel bills, fixed charge and cost per item; | |  |  |  |  |
| 4 | Draw distance–time and velocity–time graphs; | | 143, 216a |  |  |  |
| 5 | Use graphs to calculate various measures (of individual sections), including: unit price (gradient), average speed, distance, time, acceleration; including using enclosed areas by counting squares or using areas of trapezia, rectangles and triangles; | | 143, 216a |  |  |  |
| 6 | Find the coordinates of the midpoint of a line segment with a diagram given and coordinates; | | 133 |  |  |  |
| 7 | Find the coordinates of the midpoint of a line segment from coordinates; | | 133 |  |  |  |
| 8 | Calculate the length of a line segment given the coordinates of the end points; | | 150c |  |  |  |
| **2b Linear graphs and coordinate geometry** | | | | | | |
| 9 | Plot and draw graphs of *y* = *a*, *x* = *a*, *y* = *x* and *y* = –*x*, drawing and recognising lines parallel to axes, plus *y* = *x* and *y* = –*x*; | |  |  |  |  |
| 10 | Identify and interpret the gradient of a line segment; | | 97 |  |  |  |
| 11 | Recognise that equations of the form *y* = *mx* + *c* correspond to straight-line graphs in the coordinate plane; | | 159a |  |  |  |
| 12 | Identify and interpret the gradient and *y*-intercept of a linear graph given by equations of the form *y* = *mx* + *c*; | | 159a |  |  |  |
| 13 | Find the equation of a straight line from a graph in the form *y* = *mx* + *c*; | | 159a |  |  |  |
| 14 | Plot and draw graphs of straight lines of the form *y* = *mx* + *c* with and without a table of values; | | 96 |  |  |  |
| 15 | Sketch a graph of a linear function, using the gradient and *y*-intercept (i.e. without a table of values); | | 159a |  |  |  |
| 16 | Find the equation of the line through one point with a given gradient; | | 159b |  |  |  |
| 17 | Find the equation of the line through two given points. | | 159b |  |  |  |
| 18 | Identify and interpret gradient from an equation *ax* + *by* = *c*; | | 136 |  |  |  |
| 19 | Find the equation of a straight line from a graph in the form *ax* + *by* = *c*; | | 136 |  |  |  |
| 20 | Plot and draw graphs of straight lines in the form *ax* + *by* = *c*; | | 136 |  |  |  |
| 21 | Interpret and analyse information presented in a range of linear graphs: | | 159a |  |  |  |
| 22 | use gradients to interpret how one variable changes in relation to another; | | 97 |  |  |  |
| 23 | find approximate solutions to a linear equation from a graph; | |  |  |  |  |
| 24 | identify direct proportion from a graph; | | 199 |  |  |  |
| 25 | Explore the gradients of parallel lines and lines perpendicular to each other; | | 208 |  |  |  |
| 26 | Interpret and analyse a straight-line graph and generate equations of lines parallel and perpendicular to the given line; | | 208 |  |  |  |
| 27 | Select and use the fact that when *y* = *mx* + *c* is the equation of a straight line, then the gradient of a line parallel to it will have a gradient of *m* and a line perpendicular to this line will have a gradient of . | | 208 |  |  |  |
| **2c Quadratic, cubic and other graphs** | | | | | | |
| 28 | Recognise a linear, quadratic, cubic, reciprocal and circle graph from its shape; | | 161, 197 |  |  |  |
| 29 | Generate points and plot graphs of simple quadratic functions, then more general quadratic functions; | | 98 |  |  |  |
| 30 | Find approximate solutions of a quadratic equation from the graph of the corresponding quadratic function; | | 160 |  |  |  |
| 31 | Interpret graphs of quadratic functions from real-life problems; | |  |  |  |  |
| 32 | Draw graphs of simple cubic functions using tables of values; | | 161 |  |  |  |
| 33 | Interpret graphs of simple cubic functions, including finding solutions to cubic equations; | | 161 |  |  |  |
| 34 | Draw graphs of the reciprocal function  with *x* ≠ 0 using tables of values; | | 161 |  |  |  |
| 35 | Draw circles, centre the origin, equation *x*2 + *y*2 = *r*2. | |  |  |  |  |

Student’s comments or questions