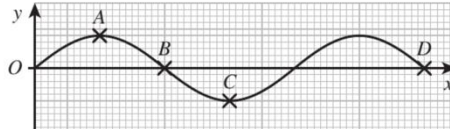
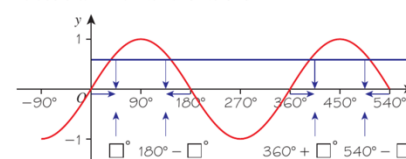
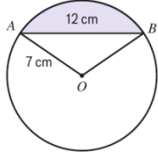
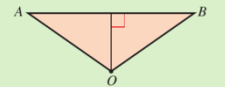
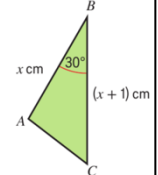
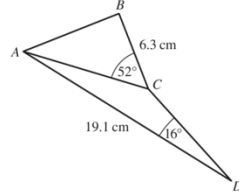
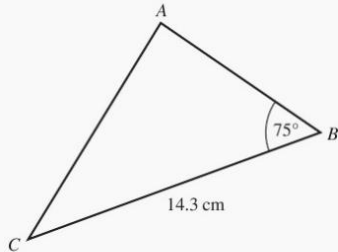
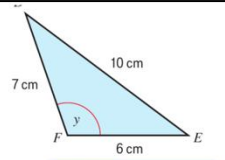
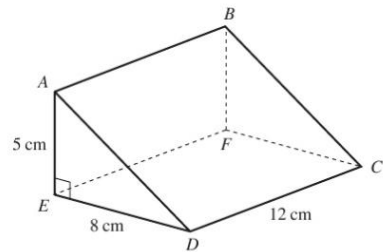
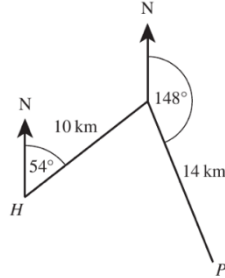
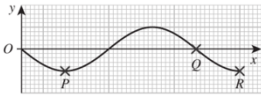


Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 1 Week 1 Can I use the graph of the sine function?	Sine Function Exact values Pythagoras Angles	GEOMETRY & MEASURES	Pythagoras Sin ratio to find angles & sides Exact values	I will be able to: - Understand how to find the sine of any angle. - Know the graph of the sine function and use it to solve equations.	Exam-style question 16 Here is a sketch of $y = \sin x$. Write down the coordinates of each of the labelled points. (4 marks)  a Rearrange the equation $5 \sin x = 3$ to make $\sin x$ the subject. b Use your answer to part a and your calculator to solve the equation $5 \sin x = 3$. c Use the sketch to solve the equation $5 \sin x = 3$ for all values of x in the interval 0° to 540°. Q17a and b hint $\sin x = \square$ $x = \sin^{-1}(\square)$ 
Lesson 1 Week 2 Can I use the graph of the cosine function?	Cosine Function Exact values Pythagoras Angles	GEOMETRY & MEASURES	Pythagoras Sin & Cos ratio to find angles & sides Exact values	I will be able to: - Understand how to find the cosine of any angle. - Know the graph of the cosine function and use it to solve equations.	Exam-style question 14 $6 \cos x = 4.86$ a Use your calculator to find one value of x. (2 marks) b Solve $6 \cos x = 4.86$ for all values of x in the interval 0° to 720°. (4 marks)

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 2 Week 2 Can I use the graph of the tangent function?	Tangent Function Exact values Pythagoras Angles	GEOMETRY & MEASURES	Pythagoras All ratios to find angles & sides Exact values	I will be able to: - Understand how to find the tangent of any angle. - Know the graph of the tangent function and use it to solve equation	Exam-style question 13 a Sketch the graph of $y = \tan x$ in the interval 0° to 720°. (2 marks) b Given that $\tan 30^\circ = \frac{1}{\sqrt{3}}$, solve the equation $3 \tan x = \sqrt{3}$ in the interval 0° to 720°. (2 marks)
Lesson 3 Week 2 Can I calculate the area of a triangle and a segment of a circle?	Area Triangle Sine Trigonometry Segment Circle	GEOMETRY & MEASURES	Area of triangle using $0.5 \times b \times h$ Area of a circle Using trigonometry in right-angled triangles	I will be able to: - Find the area of a triangle using $\frac{1}{2}ab \sin C$ - Find the area of a segment of a circle.	Problem-solving a Calculate the size of angle AOB. Give your answer correct to 1 decimal place. b Work out the area of the shaded segment. Give your answer correct to 3 significant figures.  Q11a hint Sketch the triangle. Split it into two right-angled triangles and mark on it any values you know.  Problem-solving The area of triangle ABC is 5 cm^2. a Use this information to write an equation in the form $ax^2 + bx + c = 0$. b Use the equation in part a to find a solution for x. c Reasoning Explain why there is only one possible value for x. 

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 4 Week 2 Can I use the sine rule for non right-angled triangles?	Sine rule Angle Side Trigonometry	GEOMETRY & MEASURES	Use bearings Area of a triangle Area of a sector	I will be able to: Use the sine rule to solve 2D problems.	Exam-style question 19 The area of triangle ABC is 48 cm^2. Find two possible sizes for angle ACD. Give your answers correct to 1 decimal place. (5 marks)  Exam tip State the formula you use. Sketch any graph that you use.
Lesson 1 Week 3 Can I use the cosine rule for non right-angled triangles?	Cosine rule Angle Side Trigonometry	GEOMETRY & MEASURES	Use bearings Area of a triangle Solve 2D problems with sine rule	I will be able to: Use the cosine rule to solve 2D problems with missing sides	Exam-style question 14 ABC is a triangle. $BC = 14.3 \text{ cm}$ Angle $ABC = 75^\circ$ The area of triangle ABC is 48 cm^2.  Work out the length of AC. Give your answer correct to 3 significant figures. (6 marks)

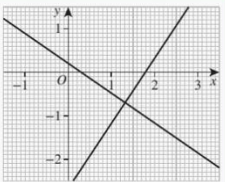
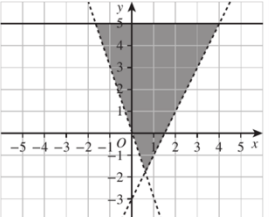
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 2 Week 3 Can I use the cosine rule for non right-angled triangles?	Cosine rule Angle Side Trigonometry	GEOMETRY & MEASURES	Use bearings Solve 2D problems with sine rule Solve 2D problems with cosine rule, missing sides	I will be able to: Use the cosine rule to solve 2D problems with missing angles	a Sketch this triangle. Label i the given angle A and its opposite side a ii the other sides b and c (it doesn't matter which way round you label sides b and c) b Use the cosine rule to work out the size of angle y. Give your answer correct to 1 decimal place.  Q6b hint Use $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$.
Lesson 3 Week 3 Can I solve problems in 3D?	3D Vertex Side Angle Plane Sine rule Cosine rule	GEOMETRY & MEASURES	Use the sine and cosine rule for missing angles & sides	I will be able to: - Use Pythagoras' theorem in 3D - Use trigonometry in 3D	Exam-style question 5 The diagram shows a triangular prism. The base $CDEF$ of the prism is a rectangle with length 12 cm and width 8 cm. Angle AED and angle AEF are right angles.  Calculate the angle that the diagonal AC makes with the plane $CDEF$. (4 marks)

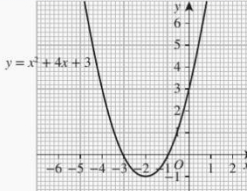
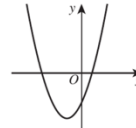
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 1 Week 4 Can I solve bearings problems using trigonometry?	Side Angle Bearing Trigonometry North Distance	GEOMETRY & MEASURES	Pythagoras Trig ratios Sine & Cosine rule	I will be able to: Solve bearings problems using trigonometry.	Exam-style question 12 A ship leaves its harbour (H) and sails for 10 km on a bearing of 054°. It then sails a further 14 km on a bearing of 148° to reach port P.  a What is the direct distance between H and P? (3 marks) b What is the bearing of P from H? (3 marks)
Lesson 2 Week 4 Can I transform trigonometric graphs?	Reflect Rotate Exact values Sin, cos, tan Trig graphs Sketch	GEOMETRY & MEASURES	Reflect & rotate co-ordinate points Know exact values for sin, cos & tan Sketch $y = \sin x$, $y = \cos x$ & $y = \tan x$	I will be able to: Recognise how changes in a function affect trigonometric graphs, involving reflections & rotations	Exam-style question 12 Here is a sketch of the graph of $y = -\sin x$.  a Write down the coordinates of each of the labelled points. (3 marks) b Which of the labelled points are the same on the graph of $y = -\sin(-x)$? (1 mark) Exam tip When asked for coordinates of points labelled with letters, make sure you write the letter as well as the coordinates. For example, $P(\square, \square)$.

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone										
Lesson 3 Week 4 Can I transform trigonometric graphs?	Reflect Rotate Exact values Sin, cos, tan Trig graphs Sketch	GEOMETRY & MEASURES	Translate co-ordinate points and shapes by column vectors Use negative translations	I will be able to: Recognise how changes in a function affect trigonometric graphs, involving translations.	Exam-style question 4 Here is the graph of $y = \sin x$ for $-180^\circ \leq x \leq 180^\circ$. Copy the graph. Then on the same grid sketch a $y = \sin x + 2$ for $-180^\circ \leq x \leq 180^\circ$ (2 marks) b $y = \sin x - 1$ for $-180^\circ \leq x \leq 180^\circ$ (2 marks) Exam tip Look for points where the graph passes through integer coordinates and transform these points carefully. Exam-style question 12 Here is a sketch of the curve $y = \sin(x + a^\circ) + b$ for $0^\circ \leq x \leq 360^\circ$. Find the values of a and b. (2 marks)										
Lesson 4 Week 4	UNIT REVIEW/TEST + Feedback														
Lesson 1 Week 5 Can I use sampling methods	Sampling Data Random Stratified	STATISTICS	Mean from a frequency table, including grouped Missing data vales from a table Fractions & percentages to work out data from a table	I will be able to: - Understand how to take a simple random sample. - Understand how to take a stratified sample.	Exam-style question 8 Last year Alexis sold holidays in Greece to 2400 people. He takes a sample of 300 of these people. He asks each person to choose their favourite type of holiday in Greece. The table shows the results. This year Alexis expects to sell 3000 holidays in Greece. a Work out how many of the 3000 holidays you think will be beach hotel holidays. (2 marks) b State any assumptions you make and explain how this may affect your answer. (1 mark) <table><tr><th>Type of holiday</th><th>Number of people</th></tr><tr><td>city hotel</td><td>63</td></tr><tr><td>beach hotel</td><td>120</td></tr><tr><td>city self catering</td><td>52</td></tr><tr><td>beach self catering</td><td>65</td></tr></table>Exam tip For part b you need to write one assumption and explain how it affects your answer.	Type of holiday	Number of people	city hotel	63	beach hotel	120	city self catering	52	beach self catering	65
Type of holiday	Number of people														
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Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone												
Lesson 2 Week 5 Can I use cumulative frequency tables and diagrams?	Data Median Cumulative Frequency Range Quartile IQR	STATISTICS	Find the median from a data set, including frequency tables and grouped frequency tables	I will be able to: - Draw and interpret cumulative frequency tables and diagrams. - Work out the median, quartiles and interquartile range from a cumulative frequency diagram.	Exam-style question 9 Charlie drives to work. The table gives information about the time (t minutes) it took him to get to work on each of 100 days. a Draw a cumulative frequency table. (1 mark) b Draw a cumulative frequency graph. (2 marks) c Use your graph to find an estimate for the percentage of days it took Charlie more than 18 minutes to drive to work. (2 marks) <table><thead><tr><th>Time, t (minutes)</th><th>Frequency</th></tr></thead><tbody><tr><td>$0 < t \leq 10$</td><td>16</td></tr><tr><td>$10 < t \leq 20$</td><td>34</td></tr><tr><td>$20 < t \leq 30$</td><td>32</td></tr><tr><td>$30 < t \leq 40$</td><td>14</td></tr><tr><td>$40 < t \leq 50$</td><td>4</td></tr></tbody></table> Exam tip For part c draw lines on the graph with a ruler to show how you got your answers.	Time, t (minutes)	Frequency	$0 < t \leq 10$	16	$10 < t \leq 20$	34	$20 < t \leq 30$	32	$30 < t \leq 40$	14	$40 < t \leq 50$	4
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Lesson 3 Week 5 Can I use stem & leaf diagrams and box plots?	Data Median Range Box Plot Quartiles IQR Percentages	STATISTICS	Find the median and range from a stem-and-leaf diagram.	I will be able to: - Find the quartiles and the interquartile range from stem-and-leaf diagrams. - Draw and interpret box plots.	Exam-style question 13 The box plot shows information about the distribution of the prices of games consoles on website A. Website A 100 200 300 400 500 Price (£) a Work out the interquartile range for the prices on website A. (2 marks) The table shows information about the distribution of the prices of games consoles on website B. <table><thead><tr><th></th><th>Smallest</th><th>Lower quartile</th><th>Median</th><th>Upper quartile</th><th>Largest</th></tr></thead><tbody><tr><td>Price (£)</td><td>190</td><td>270</td><td>320</td><td>370</td><td>450</td></tr></tbody></table> b Draw a copy of the grid above, and draw a box plot for the information in the table. (2 marks) Kate says, “The box plot shows that the prices are higher on website B than on website A.” c Is Kate correct? Give a reason for your answer. (1 mark)		Smallest	Lower quartile	Median	Upper quartile	Largest	Price (£)	190	270	320	370	450
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Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone												
Lesson 1 Week 6 Can I use frequency density to draw histograms?	Histogram Continuous Data Frequency density Frequency	STATISTICS	Division calculations Draw a frequency diagram Find the modal class Estimate the mean	I will be able to: - Understand frequency density. - Draw histograms.	Exam-style question 7 This table contains data on the heights of 77 students. Draw a histogram for this data. (3 marks) <table><thead><tr><th>Height, h (m)</th><th>Frequency</th></tr></thead><tbody><tr><td>$1.50 < h \leq 1.52$</td><td>4</td></tr><tr><td>$1.52 < h \leq 1.55$</td><td>18</td></tr><tr><td>$1.55 < h \leq 1.60$</td><td>25</td></tr><tr><td>$1.60 < h \leq 1.65$</td><td>15</td></tr><tr><td>$1.65 < h \leq 1.80$</td><td>15</td></tr></tbody></table>	Height, h (m)	Frequency	$1.50 < h \leq 1.52$	4	$1.52 < h \leq 1.55$	18	$1.55 < h \leq 1.60$	25	$1.60 < h \leq 1.65$	15	$1.65 < h \leq 1.80$	15
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Lesson 2 Week 6 Can I use frequency density to interpret histograms?	Histogram Continuous Data Frequency density Frequency	STATISTICS	Write the modal class Estimate the mean Solve mean problems including combined means	I will be able to: - Interpret histograms - Find the mean and median from a histogram.	Exam-style question 8 The histogram shows the masses of some elephants. Exam tip Label the bars with their frequencies as you work them out. a How many elephants are there in total? (1 mark) b Estimate the median mass. (2 marks) c 40% of the elephants that weigh more than 5.2 tonnes are female. Work out an estimate for the number of female elephants over 5.2 tonnes. (3 marks)												

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 3 Week 6	UNIT REVIEW/TEST + Feedback				
Lesson 4 Week 6 Can I use graphs to solve simultaneous equations?	Equations Simultaneous equations Intersection Equation of a line Equation of a circle	ALGEBRA	Know and draw graphs of circles Solve linear simultaneous equations	I will be able to: Solve simultaneous equations graphically.	Exam-style question 4 The graphs with equations $2x + 3y = \frac{3}{5}$ and $3x - 2y = \frac{96}{18}$ have been drawn on the grid shown. Using the graphs, find estimates for the solution of the simultaneous equations $2x + 3y = \frac{3}{5}$ $3x - 2y = \frac{96}{18}$ (2 marks) Exam tip Estimate does not mean 'guess'. Read values from graphs as accurately as you can.  Exam-style question 8 a On a suitable grid draw the graph of $x^2 + y^2 = 13.69$. (2 marks) b Hence find estimates for the solutions of the simultaneous equations $x^2 + y^2 = 13.69$ $2x + y = 12$ (3 marks)
Lesson 1 Week 7 Can I use graphs to show inequalities and regions?	Inequalities Equation Graph Integers Satisfy Set notation	ALGEBRA	Know which integers satisfy an inequality Solve inequalities with one variable and show solution using set notation.	I will be able to: - Represent inequalities on graphs. - Interpret graphs of inequalities.	Exam-style question 5 On a coordinate grid, shade the region that satisfies all these inequalities. $y > 2 \quad x + y < 7 \quad y > 3x$ Label the region R. (3 marks) Exam-style question 7 Write down the three inequalities that define the shaded region. (4 marks) 

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone																
Lesson 2 Week 7 Can I use graphs of quadratic functions?	Quadratic Function Graph Maximum Minimum Intersection Turning point Vertex	ALGEBRA	Solve quadratic equations by factorising. Sketch simple quadratic graphs Find coordinates of maximum point.	I will be able to: - Recognise and interpret a quadratic function. - Draw a quadratic function.	Exam-style question 5 Here is the graph of $y = x^2 + 4x + 3$. a Use the graph to find the roots of the equation $x^2 + 4x + 3 = 0$. (1 mark) b Write down the coordinates of the turning point. (1 mark)  Exam-style question 10 Here is the sketch of a curve.  The equation of the curve is $y = x^2 + ax + b$, where a and b are integers. The points $(1, 0)$ and $(0, -4)$ lie on the curve. Find the coordinates of the turning point of the curve. (4 marks)																
Lesson 3 Week 7 Can I solve quadratic equations graphically?	Maximum Minimum Completed square Quadratic formula Roots Intersection	ALGEBRA	Maximum and minimum points. Complete the square. Solve using the quadratic Formula.	I will be able to: - Find approximate solutions to quadratic equations graphically. - Solve quadratic equations using an iterative process.	Exam-style question 14 Given that $x^2 - 4x + 7 = (x - a)^2 + b$ for all values of x, a find the value of a and the value of b. (2 marks) b Hence write down the coordinates of the turning point on the graph of $y = x^2 - 4x + 7$. (1 mark) Exam-style question 4 a Copy and complete the table of values for $y = 2x^2 + 4x - 2$. (2 marks) <table><tr><td>x</td><td>-4</td><td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td></tr><tr><td>y</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> b Plot the graph of $y = 2x^2 + 4x - 2$. (2 marks) c Use your graph to estimate the roots of the equation $y = 2x^2 + 4x - 2$. (3 marks) d Write the expression $2x^2 + 4x - 2$ in the form $a(x + b)^2 + c$. (2 marks) Exam tip For greater accuracy, use a ruler and draw lines on the graph to read off values.	x	-4	-3	-2	-1	0	1	2	y							
x	-4	-3	-2	-1	0	1	2														
y																					

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 1 Week 8 Can I use graphs of cubic functions?	Intersection Cubic function Maximum Minimum Roots	ALGEBRA	Find intersection points. Expand double brackets. Find roots of quadratics by completing the square.	I will be able to: - Find the roots of cubic equations. - Sketch graphs of cubic functions.	Exam-style question 6 Show that $(x+1)(x+2)(x-1)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are positive integers. (3 marks) Exam-style question 12 Sketch the graph of $y = -x(x+2)^2$ marking clearly the points of intersection with the axes. (3 marks) Exam tip Work out the number of points of intersection with the axes and their coordinates before you plot them.
Lesson 2 Week 8 Can I use iteration to solve equations?	Iteration Roots Quadratic Cubic Substitute Re-arrange	ALGEBRA	Solve simple quadratic and cubic equations. Change the subject.	I will be able to: Solve quadratic and cubic equations using an iterative process.	Exam-style question 6 a Show that the equation $x^3 - x = 3$ has a solution between 1 and 2. (2 marks) b Show that the equation $x^3 - x = 3$ can be rearranged to give $x = \sqrt[3]{x+3}$. (1 mark) c Starting with $x_0 = 1$, use the iteration formula $x_{n+1} = \sqrt[3]{x_n + 3}$ three times to find an estimate for a solution of $x^3 - x = 3$. (3 marks) Exam tip In 'Show that ...' questions, set out your working clearly so that someone else can follow and understand it. Exam-style question 11 a Show that the equation $x^3 - 5x + 3 = 0$ has a solution between $x = 1$ and $x = 2$. (2 marks) b Show that the equation $x^3 - 5x + 3 = 0$ can be rearranged to give $x = \frac{-3}{x^2 - 5}$. (2 marks) c Starting with $x_0 = 1$, use the iteration formula $x_{n+1} = \frac{-3}{x_n^2 - 5}$ three times to find an estimate for a solution of $x^3 - 5x + 3 = 0$. (3 marks) d By substituting your answer to part c into $x^3 - 5x + 3$, comment on the accuracy of your estimate for a solution to $x^3 - 5x + 3 = 0$. (2 marks)

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Red Zone
Lesson 3 Week 8	UNIT REVIEW / TEST				
Lesson 4 Week 8	Exam Practise				