

Al-Bayan Bilingual School  
High School Science & Technology Department  
AP Physics 1 Prerequisites.

### Mathematical skills

This is a checklist of the mathematical skills you need for your AP Physics 1 course.

Tick each box in the checklist when you know that you have got this skill.

You can use a calculator for all AP Physics 1 exam papers. You need to know how to use the calculator to solve the mathematical operations in your course.

You can:	Checklist	Comments
<ul style="list-style-type: none"> <li>add, subtract, multiply and divide</li> </ul>		
use: <ul style="list-style-type: none"> <li>averages</li> <li>decimals</li> <li>fractions</li> <li>percentages</li> <li>ratios</li> <li>reciprocals</li> </ul>		
<ul style="list-style-type: none"> <li>Prefixes, powers and symbols of the powers of 10.</li> </ul>		
<ul style="list-style-type: none"> <li>understand significant figures and use them appropriately</li> </ul>		
<ul style="list-style-type: none"> <li>use direct proportion (stepwise increases)</li> <li>use inverse proportion (inverse means turned up side down)</li> </ul>		You should know that if you plot a graph of $y$ against $x$ , then a straight line <u>through the origin</u> shows that $y$ is directly proportional to $x$ the inverse of 4 is $\frac{1}{4}$ (= 0.25)
<ul style="list-style-type: none"> <li>use positive, whole number indices in algebraic expressions</li> </ul>		
<ul style="list-style-type: none"> <li>draw charts</li> <li>graphs with line of best fit</li> </ul>		You will be given the data or you may be asked to predict a behavior.
interpret: <ul style="list-style-type: none"> <li>bar graphs</li> <li>pie charts</li> <li>line graphs</li> </ul>		
<ul style="list-style-type: none"> <li>determine the gradient and intercept of a graph</li> </ul>		
<ul style="list-style-type: none"> <li>select suitable scales and axes for graphs</li> </ul>		
<ul style="list-style-type: none"> <li>make approximate evaluations of numerical expressions</li> </ul>		

You can:	Checklist	Comments
recall and use equations for: <ul style="list-style-type: none"> <li>• the area of a rectangle</li> <li>• the area of a triangle</li> <li>• the area of a circle</li> <li>• the volume of a rectangular block</li> <li>• the volume of a cylinder</li> </ul>		area = length $\times$ width volume = length $\times$ breadth $\times$ height
<ul style="list-style-type: none"> <li>• use a ruler, compasses, protractor and set square</li> </ul>		
understand the meaning of: <ul style="list-style-type: none"> <li>• angle</li> <li>• curve</li> <li>• circle</li> <li>• radius</li> <li>• diameter</li> <li>• circumference</li> <li>• square</li> <li>• parallelogram</li> <li>• rectangle</li> <li>• diagonal</li> </ul>		
<ul style="list-style-type: none"> <li>• solve equations of the form <math>x = y + z</math> and <math>x = yz</math> when two of the terms are known</li> </ul>		
<ul style="list-style-type: none"> <li>• recognise and use clockwise and anticlockwise directions</li> </ul>		
<ul style="list-style-type: none"> <li>• recognise and use points of the compass (N, S, E, W)</li> </ul>		
<ul style="list-style-type: none"> <li>• use sines, cosines, tans, inverse sines, inverse cosines, and inverse tans.</li> </ul>		