

St Mary Redcliffe and Temple 6th Form



Year 11 into 12 transition task

Subject: Physics

Are you planning on studying Physics at A Level? If you are, here's some activities you can do so that you hit the ground running!

Tasks:

Task 1 – Preparing for A Level Physics

1. Click [here](#) to access the **Introduction to Maths for A Level Physics** video
2. Watch the video making notes on the different mathematic skills required for the course
3. Complete the worksheet **Introduction to A level Physics Worksheet** at the end of this document.
4. These must be completed and brought to your first Physics lesson.

Task 2 – Practicing skills

1. Create an account on the Isaac Physics website. This can be done [here](#)
2. Complete the assigned activities to practice:
 - Using and Rearranging Equations.
 - Using Standard Form and Prefixes.
 - Converting Units
 - Finding Gradients and Intercepts of Graphs
 - Calculating areas under Line Graphs

These tasks should be completed for the start of the year in September.

Extension: If you finish the above task and would like to further hone your problem-solving skills by revising the GCSE content, more assignments will be added over time. Make sure you are regularly checking the assignments tab for new work.

Sick of Netflix?

Check out this [link](#) where you can find interesting physics books and documentaries that are worth reading/watching.

Important information regarding the entry requirements for A level Physics

The entry requirement to study A Level Physics are:

- 65 in Combined Science **and** a 6 in Maths Or
- A 6 in Separate Physics **and** a 6 in Maths

What if I fall just short of this requirement?

In the unfortunate scenario that your grade awards are just short of these entry requirements (e.g. you are awarded a 55 in Combined Science or a 5 in Separate Physics/Maths) then you will be required to pass a 1-hour entrance test in order to gain acceptance onto the course.

The questions in the test will be common GCSE exam style questions and will require you to complete tasks such as using formula to calculate quantities, defining quantities and writing explanations.

Should you need to do this test it is important that you prepare thoroughly and it is suggested that you treat it like a normal GCSE assessment (don't forget to practice those past paper questions). The material chosen for the test will common to all exam boards so you can use your revision resources from the last two years.

Below is a list of the topics that you would need to revise in order to be fully prepared for the test:

1) Forces and Motion

- i) Resultant forces.
- ii) Newton's Laws (all three).
- iii) Conservation of momentum.
- iv) Kinetic and gravitational potential energy.

2) Electrical Circuits

- i) Current.
- ii) Potential Difference (often referred to as voltage).
- iii) Resistance.
- iv) Series and parallel circuits (involving calculations of the current, potential difference and resistance).

3) Maths Skills

- i) Rearranging equations (sometimes referred to as changing the subject of an equation).
- ii) Calculating the gradient of graphs.

INTRODUCTION TO A LEVEL PHYSICS WORKSHEET

1. Complete the table transforming units from GCSE format to A-level format

Quantity	GCSE Format	A-Level Format
Speed	m/s	
Acceleration	m/s ²	
Current	C/s	
Energy	Kg m ² /s ²	
Pressure	N/m ²	
Voltage	J/C	
Power	J/s	
Density	kg/m ³	
Gravitational Field Strength	N/kg	
Electric Field Strength	V/m	
Momentum per Unit Volume	Kg/m ² /s	
Specific Heat Capacity	J/kg/°C	

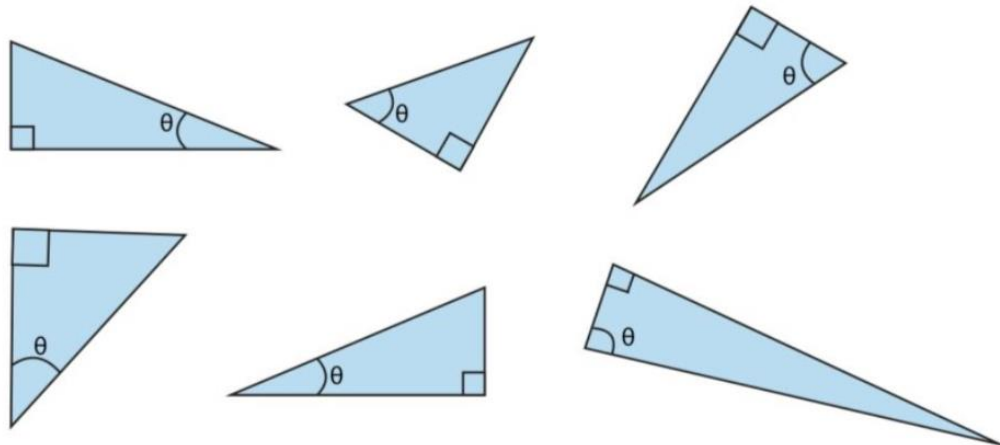
2. Round the following values to the required number of significant figures

- The mass of a sample is 0.004567 kg.
Give your answer to **2 significant figures**.
- A car travels at a speed of 123.456 m/s.
Round this speed to **3 significant figures**.
- The energy transferred is 98765 J.
Write this value to **2 significant figures**.
- The time taken for a reaction is 0.000789 s.
Give your answer to **3 significant figures**.
- A force of 0.05678 N is applied.
Round this to **2 significant figures**.
- The volume of a gas is 345.67 cm³.
Give your answer to **3 significant figures**.
- The current in a circuit is 0.009876 A.
Write this to **2 significant figures**.
- The wavelength of light is 6.54321×10^{-7} m.
Round this to **3 significant figures**.

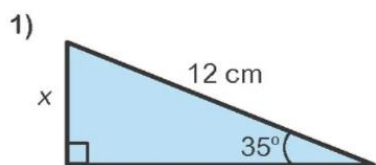
3. Label the sides opposite, adjacent and hypotenuse in each of the right-angle triangles.



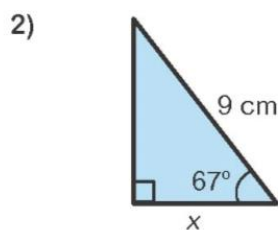
Need support?



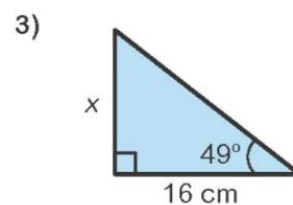
4. Calculate the missing length x



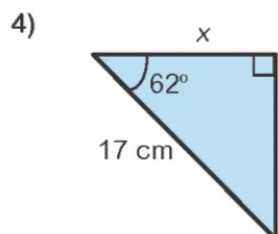
$x = \underline{\hspace{2cm}}$



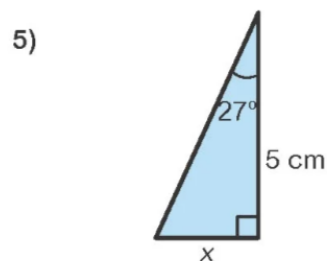
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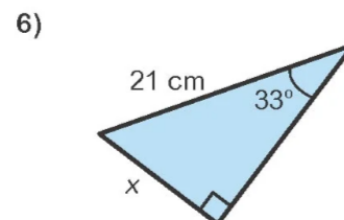
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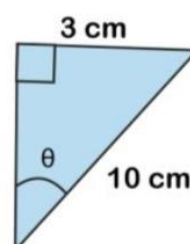
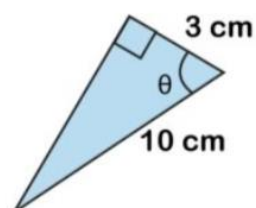
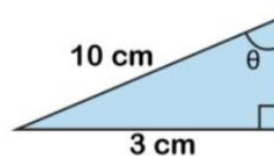
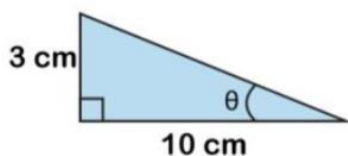


$x = \underline{\hspace{2cm}}$



$x = \underline{\hspace{2cm}}$

5. Calculate the missing angle, θ , for each triangle.



6. Rearrange the following formula:

- a) Make **I** the subject

$$V = IR$$

- b) Make **d** the subject

$$W = Fd$$

- c) Make **u** the subject

$$v = u + at$$

- d) Make **m** the subject

$$F = ma$$

- e) Make **v** the subject

$$KE = \frac{1}{2}mv^2$$

- f) Make **t** the subject

$$s = \frac{1}{2}at^2$$

- g) Make **n** the subject

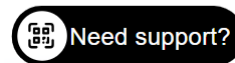
$$pV = nRT$$

- h) Make **k** the subject

$$f = \frac{1}{2\pi} \sqrt{\frac{k}{m}}$$

- i) Make **a** the subject

$$v = \sqrt{u^2 + 2as}$$



7. Use natural logs ($\ln$) and log (base 10) $\log_{10}$ to determine the value, x

a) $2^x = 8$

b) $3^x = 27$

c) $5^x = 25$

d) $10^x = 1000$

e) $4^x = 1$

f) $2^x = 0.5$

g) $10^x = 0.01$

h) $5^x = 0.2$

i) $3^x = 0.333$

j) $0.1 = 10^{-x}$

k) $4^x = 0.25$

l) $10^{2x} = 0.0001$

m) $e^x = 1$

n) $e^x = e^3$

o) $e^x = 7$

p) $e^{2x} = 16$

q) $5e^x = 10$

