June 21 Paper 2 Higher Tier AQA GCSE Physics Answer Grid With Hints

Instructions

1. Download the past paper using the link below.
2. Use this document to type your answers into.
3. Use the hints to help you. Sometimes you have to click on external websites for information.
4. At the end of the document I put a link to the AQA mark scheme for you to check your answers.
5. Please take time and care while you do this and try to absorb as much learning as you can out of each question.

The question paper that these hints relate to can be found here

https://filestore.aqa.org.uk/sample-papers-and-mark-schemes/2021/november/AQA-84632H-QP-NOV21.PDF

Q	Hint	Your Answer
1	This answer does not involve reaction time. Force is directly proportional to mass and directly proportional to acceleration. Use you answer from above rearranged for acceleration. a = something divided by m. You can read both the thinking and braking distance from the graph. P = something divided by A. What could the something be.	

	Rearrange for A and give answer in the form number ✖ 10^n	
2	This page will help with elastic deformation - https://www.bbc.co.uk/bitesize/guides/z9hk3k7/revision/1 This page will help with the practical method - https://www.bbc.co.uk/bitesize/guides/z9hk3k7/revision/4 In letters it is F = Ke Work out the gradient of the graph - use most of the line to do this. Gradient = rise/run If two variables are directly proportional to one another it means that, as one doubles in size, then so does the other/ elastic potential energy = 0.5 × spring constant × $(\text{extension})^2$ Remember that cm needs to be in m.	
3	This page will be useful for the stability/main sequence question. https://www.bbc.co.uk/bitesize/guides/zpxv97h/revision/2 See image at bottom of this table to help with the sequence of a star.	

	The slower the speed the smallest red shift observed.	
4	One begins with the letter d and the other begins with the letter v. This video will tell you how to draw the ray diagram for a convex lens. https://www.youtube.com/watch?v=KNUcS4NaqDw The image will be formed to the left of the lens (enjoy drawing it) Don't forget arrows on the rays. do not accept inversely Proportional - include terms such as more gradually To calculate uncertainty in a range of values. 1. Work out the range. 2. Divide this value by 2. Explained in this video - https://www.youtube.com/watch?v=Ukbn_ssJ02w ● only _____ is transmitted by the filter ● _____ is absorbed by the (blue) object (so) no light is _____	

	by the (blue) object	
5	For uses of UV see - https://www.bbc.co.uk/bitesize/guides/z9rqsrd/revision/3 Use speed = frequency ✖ wavelength Write down the parts of the EM spectrum starting with the shortest wavelength and ending with the longest wavelength. Begin with Gamma and end with Radio - look at this link to help you https://www.bbc.co.uk/bitesize/guides/z32f4qt/revision/1 Look a this link for the difference between transverse and longitudinal waves - https://www.bbc.co.uk/bitesize/guides/zgf97p3/revision/1#:~:text=In%20 longitudinal%20 waves%20%2C%20the%20 vibrations,a%20medium%20to%20travel%20through.	
6	No marks for the word anomalous. No marks for to make more accurate. This is all about reducing r_____ errors. Remember that frequency is the number of waves per second and the readings are for 10 waves. Step 1 - calculate average. Add together and divide by 3.	

	Step 2 - Work out for the number of waves per second (divide answer in step 1 by 10) Think about how speed = distance/time could be used. How would you measure distance? How would you measure time?	
7	What force is providing resistance between the tyres and the road? The area underneath the velocity - time graph is the distance. You can think of this as a rectangle and a triangle. Remember that moment = force × distance. See equation below table. Insert numbers then rearrange for acceleration. See triangle sketch which gives answer - see how it is drawn and ask - do I know how to do this?	
8	See https://www.bbc.co.uk/bitesize/guides/zc3dxfr/revision/2 for help for what it is called. See	

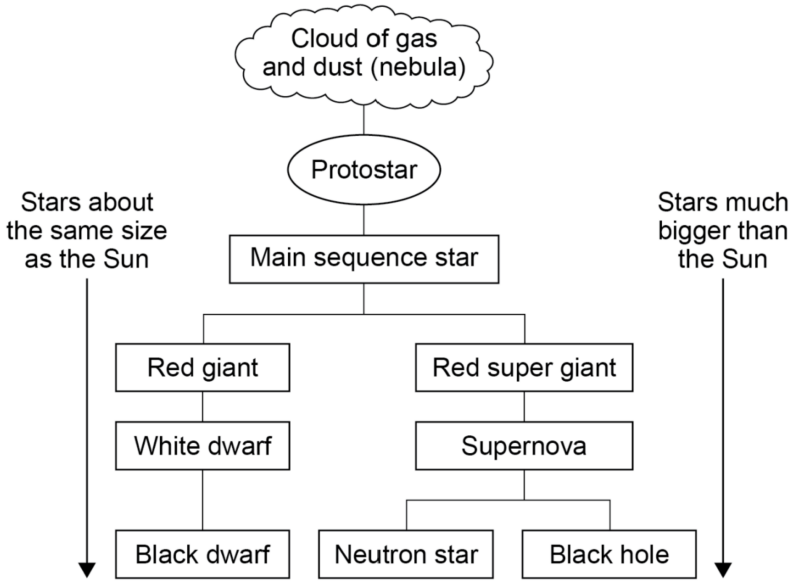
	https://www.bbc.co.uk/bitesize/guides/z9f92nb/revision/5 to and make notes on how a loudspeaker works. How many variables did the student change?	
9	So use Fleming's Left hand rule - image below table. Current travels positive to negative - this is second finger. Magnetic Field from North to South - this is first finger Thumb will point in the direction the copper rod will move. First finger, thumb and second finger have to be held at right angles to each other. This calculation is tricky! You need three equations. Use F = BIL to work out F. B = mag flux density in Tesla. I = current L = length of copper rod. Then use F=ma to work out acceleration, a Remember that m has to be in	

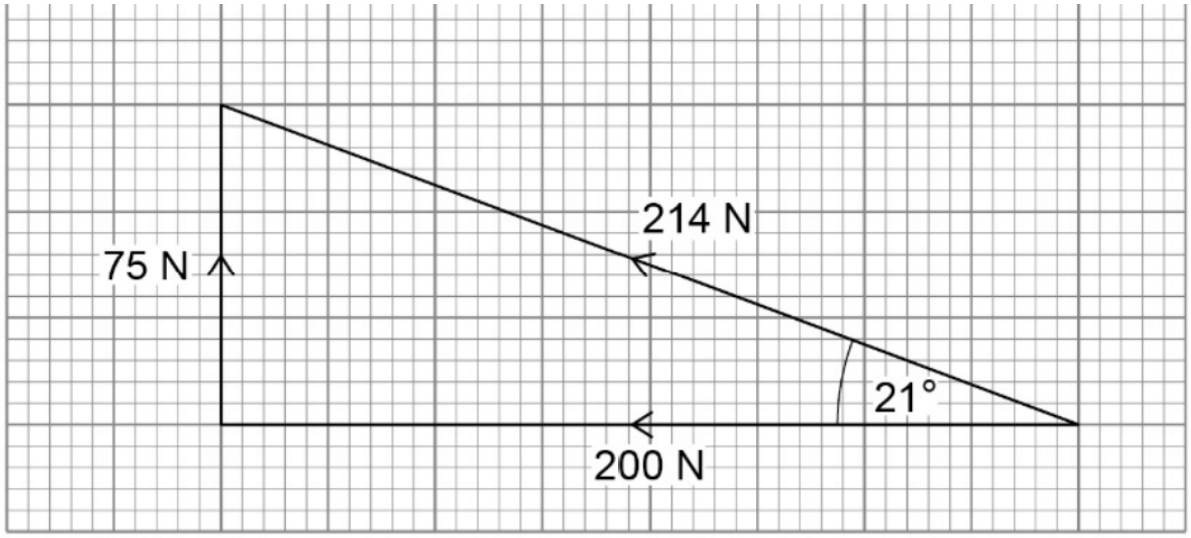
	Kg Then use a=(v-u)/t to work out V. Remember that u will be 0 m/s as in the question it mentions the rod starts from rest.	

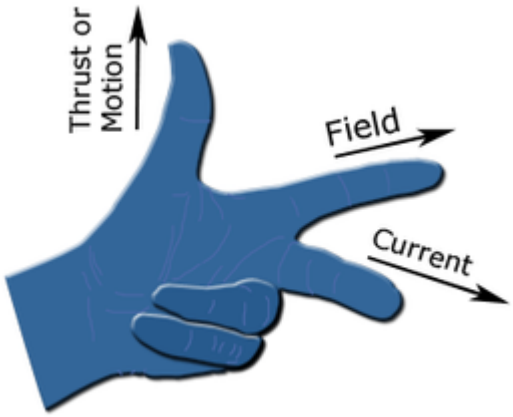
Prefixes

Prefix	Multiplication factor	Symbol
Tera	$x10^{12}$	T
Giga	$x10^{9}$	G
Mega	$x10^{6}$	M
Kilo	$x10^{3}$	k
Deci	$x10^{-1}$	d
Centi	$x10^{-2}$	c
Mili	$x10^{-3}$	m
Micro	$x10^{-6}$	μ
Nano	$x10^{-9}$	n

$$(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$$







Mark Scheme can be found on this link

https://filestore.aqa.org.uk/sample-papers-and-mark-schemes/2021/november/AQA-84632H-MS-NOV21.PDF