

Chapter 3 Circular Motion. Revision Questions page 111-113 – Multiple Choice Answers

Q	Ans	Explanation
1	D	Change in velocity is found by adding the reverse of the initial vector to the final vector. The vector sum is a right-angled triangle with the resultant pointing towards the centre.
2	A	1 revolution is $2\pi r$ metres. So, the 20 revolutions is $20 \times 2\pi r$ metres and then we divide this by 10 seconds to have the result “per second”.
3	D	The relationship between F_c and v is: $F_c \propto v^2$. When plotted with F_c on the y-axis and v on the x-axis, we have a $y \propto x^2$ shape, which is the shape of graph D.
4	A	The hanging mass provides the centripetal force F_c . The formula $F_c = mv^2/r$ suggests that if F_c is increased then we would have to increase either m or v if r is to be kept constant.
5	B	The centripetal force is directed towards the centre so therefore the acceleration is also directed to the centre (Newton’s 2 nd law). The instantaneous velocity is a tangent to the F_c pointing in the direction of motion.

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