

## Answer on Question 55065, Physics / Astronomy | Astrophysics

$$\ddot{\Omega} = n\Omega^{n-1}\dot{\Omega}$$

But from the question:

$$\Omega^{n-1} = \frac{\dot{\Omega}}{\Omega}, \text{ and so:}$$

$$\ddot{\Omega} = n \frac{\dot{\Omega}}{\Omega} \dot{\Omega}, \text{ and therefore:}$$

$$n = \frac{\ddot{\Omega}\Omega}{\dot{\Omega}^2}$$

For magnetic dipole radiation:

$$\dot{E} = I\Omega\dot{\Omega} = \frac{2}{3c^2} (BR^2 \sin a)^2 \Omega^4$$

Therefore,  $\dot{\Omega} \propto \Omega^3$ , and therefore  $n = 3$ .

**Answer: n = 3**

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