A conducting ring of resistance $R$ and radius $a$ is placed in a uniform magnetic field, $B$, as shown below. The magnitude of the magnetic field is steadily increasing over time. The magnitude of the induced EMF is:

1). $B \pi a^2$
2). $B 2 \pi a$
3). $2 \pi a \frac{dB}{dt}$
4). $\pi a^2 \frac{dB}{dt}$
5). 0.
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