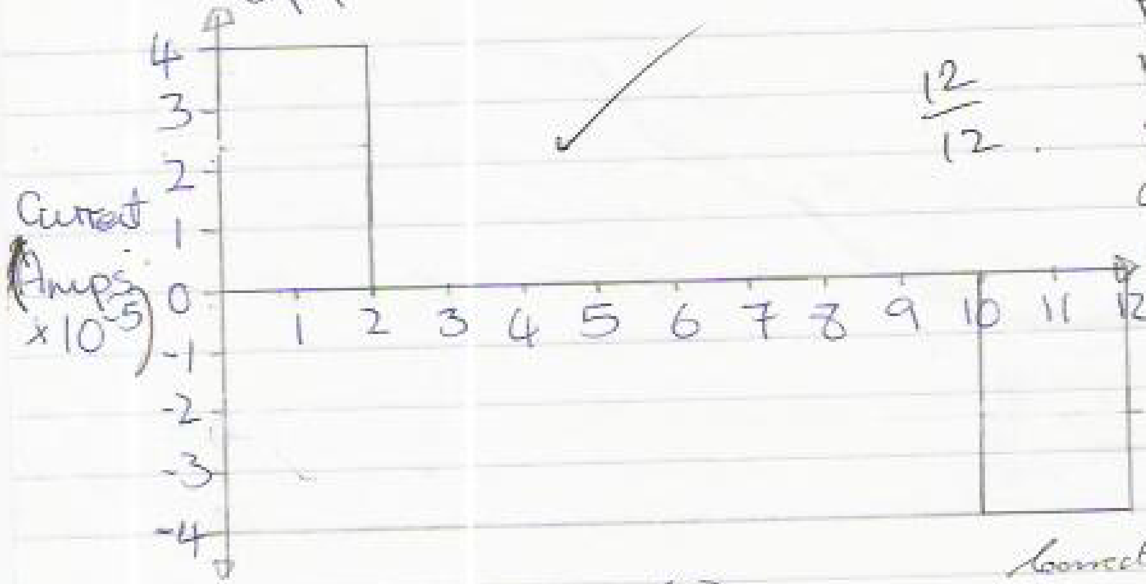
c) $i = \frac{1}{R}\left|\frac{d\Phi}{dt}\right| =$ ✓ Mention that this is Faraday's Law.

$= \frac{1}{6\Omega} \times 2 \cdot 4 \times 10^{-4}\,Tm^2/s = 0 \cdot 4 \times 10^{-4}\,A$ ✓ Correct with your values

Should be $4 \times 10^{-3} A$.

From the Right hand rule, on entering the field the current is anticlockwise in the loop EFGH, and on exiting, the current is clockwise in the loop, and since the magnitude of the rate of change of flux is the same, the currents are equal in magnitude and opposite in sense. ✓



P.S. From the right hand rule, the current on entering the field is anticlockwise. On exiting, it is negative.

12/12.

Correct for your values.

4/4

d) $P = I^2 R$

$= (0 \cdot 4 \times 10^{-4} A)^2 \times 6\Omega$

$= 9 \cdot 6E{-9}\,W$ ✓

Hence total energy dissipated = Power × time

$= 9 \cdot 6E{-9}\,W \times (2+2)s = 38 \cdot 4E{-9}\,J$ ✓

e) From Lenz's law, an induced current acts to oppose the change causing it. The cause of the induced current is the increase or decrease in flux on entering or exiting the field. The induced current acts against the motion (applied force), and work has to be done to overcome this. This work shows as energy dissipated in the wire.

yes, by the person pushing.

4/4.

33/35