1. Magnetic field due to infinite long straight wire carrying current –

As shown in figure suppose current 'I' is flowing through the wire . We have to find the magnetic field at point p which is 'r' distance away from the wire .

From Ampere's circuital law $\oint B.dl = \mu_0 I$

$\oint B.dl\ coso = \mu_0 I$

Or, $B\oint dl = \mu_0 I$

Or, $B \cdot 2\prod r = \mu_0 I$

And hence , $B = \mu_0 I/2\prod r$ …… req. eq.