Magnetic Field Worksheet

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10. An electron of energy 2 KeV describes a circle in a magnetic field of 7.2×10^{-2} T. Calculate the radius of the circle, given $e = 1.6 \times 10^{-19}$ C and $m = 9.0 \times 10^{-31}$ kg.
11. Electrons move at right angles to a magnetic field of flux density 3×10^{-2} tesla and describe a circular path of radius 1.5 cm. Calculate the velocity of the electron. Given $e/m = 1.7 \times 10^{11}$ C/kg.
12. An electron of energy 180 eV describes a circle in a magnetic field 5×10^{-2} Wb m^2. Calculate the radius if $m = 9 \times 10^{-31}$ kg, $e = 1.6 \times 10^{-19}$ C.
13. A stream of electrons moves at right angles to a uniform magnetic field of flux density 0.03 Wb m ^{2}. If the velocity of the electron is 2×10^7 ms^{-1}, find the radius of the circular path, given $e/m = 1.76 \times 10^{11}$ C/kg.
14. Electrons move at right angles to a magnetic field of 1.5×10^{-2} Wb m^2 and enter with a velocity of 6×10^7 ms^{-1}. Find the radius of the circular path. Given $e = 1.6 \times 10^{-19}$ C and $m = 9.1 \times 10^{-31}$ kg.
15. Find the strength of the magnetic field to cause an electron of 1000 eV energy to move in a circular path of radius 0.05 m. Given $e/m = 1.8 \times 10^{11}$ C/kg and $m = 9 \times 10^{-31}$ kg.