

Chapter 30 Magnetic Fields Due to Currents

30-1 Calculating the Magnetic Field Due to a Current

30-01

Question 858

A segment of wire is formed into the shape shown in Figure (5) and carries a current  $I$ . What is the magnitude of the resulting magnetic field at the point  $P$ ?

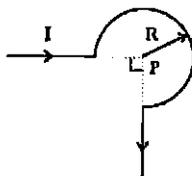


Figure # 5

- (a)  $3 \mu I/(3R)$ .
- (b)  $3 \mu I/(6R)$ .
- (c)  $3 \mu I/(5R)$ .
- (d)  $3 \mu I/(9R)$ .
- (e)  $3 \mu I/(8R)$ .

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Question 859

Three long wires parallel to the  $x$ -axis carry currents as shown in Fig. 6. If  $I=20$  A, what is the magnitude of the magnetic field at the origin?

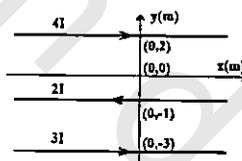


Figure # 6

- (a) 58 micro T.
- (b) 12 micro T.
- (c) 37 micro T.
- (d) 47 micro T.
- (e) 25 micro T.

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0.58-47%

Question 860

What is the magnitude of the magnetic field at point  $P$  due to the current carrying wire shown in Figure 7, if  $I = 2.0$  A,  $a = 20$  cm and  $b = 2a$ ?

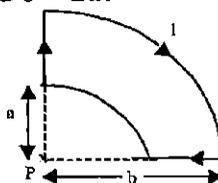


Figure 7

- (a) 2.1 micro-T
- (b) 0.8 micro-T
- (c) 0.4 micro-T
- (d) 2.8 micro-T
- (e) 1.1 micro-T