60. (a) Eq. 30-22 applies for $r < c$. Our sign choice is such that i is positive in the smaller cylinder and negative in the larger one.

$$B = \frac{\mu_0 i r}{2\pi c^2} \qquad \text{for} \quad r \le c \ .$$

(b) Eq. 30-19 applies in the region between the conductors.

$$B = \frac{\mu_0 i}{2\pi r} \qquad \text{for} \quad c \le r \le b \ .$$

(c) Within the larger conductor we have a superposition of the field due to the current in the inner conductor (still obeying Eq. 30-19) plus the field due to the (negative) current in the that part of the outer conductor at radius less than r (see part (a) of problem 59 for more details). The result is

$$B = \frac{\mu_0 i}{2\pi r} - \frac{\mu_0 i}{2\pi r}\left(\frac{r^2 - b^2}{a^2 - b^2}\right) \qquad \text{for} \ \ b < r \le a \ .$$

If desired, this expression can be simplified to read

$$B = \frac{\mu_0 i}{2\pi r}\left(\frac{a^2 - r^2}{a^2 - b^2}\right) \ .$$

(d) Outside the coaxial cable, the net current enclosed is zero. So $B = 0$ for $r \ge a$.

(e) We test these expressions for one case. If $a \to \infty$ and $b \to \infty$ (such that $a > b$) then we have the situation described on page 696 of the textbook.

(f) Using SI units, the graph of the field is shown below: