70. We note that the distance from each wire to P is $r = d/\sqrt{2} = 0.071$ m. In both parts, the current is $i = 100$ A.

(a) With the currents parallel, application of the right-hand rule (to determine each of their contributions to the field at P) reveals that the vertical components cancel and the horizontal components add – yielding the result:

$$B = 2\left(\frac{\mu_0 i}{2\pi r}\right)\cos 45^\circ = 4.0 \times 10^{-4}\ \text{T}\ .$$

and directed leftward in the figure.

(b) Now, with the currents antiparallel, application of the right-hand rule shows that the horizontal components cancel and the vertical components add. Thus,

$$B = 2\left(\frac{\mu_0 i}{2\pi r}\right)\sin 45^\circ = 4.0 \times 10^{-4}\ \text{T}\ .$$

and directed upward in the figure.