30.43. **Model:** The electric field is the negative of the slope of the potential graph.

Visualize: Please refer to Figure P30.43.

Solve: Since the contours are uniformly spaced along the *y*-axis above and below the origin, the slope method is the easiest to apply. Point 1 is in the center of a 75 V change (25 V to 100 V) over a distance of 2 cm, so the slope $\Delta V/\Delta s$ is 37.5 V/cm or 3750 V/m. Point 2 has the same potential difference in half the distance. Thus the slope at point 2 is 7500 V/m. The magnitudes of the electric fields at points 1 and 2 are 3750 V/m and 7500 V/m. The directions of the electric fields are downward at point 1 and upward at point 2, that is, from the higher potential to the lower potential. That is,

$$\vec{E}_1 = \left(3750 \text{ V/m, down}\right) \qquad \vec{E}_2 = \left(7000 \text{ V/m, up}\right)$$