Quiz

The electric potential in a region of space is given by $V(x,y) = 2\alpha x^2 y + 3\beta y^2$, where α and β are constants. What is the electric field (x and y components) at the position $x = 1$, $y = 2$?

	E_x	E_y
(a)	8α	12β
(b)	-8α	-12β
(c)	8α	$2\alpha + 12\beta$
(d)	-8α	$-2\alpha - 12\beta$

(e) None of above

Quiz

The electric field in some region of space is given by

$$\vec{E} = \begin{cases} -\alpha r \hat{i}_r & \text{for } r < a \\ 0 & \text{for } a < r < b \\ \beta \frac{1}{r} \hat{i}_r & \text{for } r > b \end{cases}$$

. What is the potential difference $V(b) - V(0)$?

(a) $\frac{1}{2} \alpha a^2$

(b) $-\frac{1}{2} \alpha a^2$

(c) $\frac{1}{2} \alpha b^2$

(d) $-\frac{1}{2} \alpha b^2$

(e) None of above