

25. (a) All the charge is the same distance R from C , so the electric potential at C is

$$V = \frac{1}{4\pi\epsilon_0} \left[\frac{Q}{R} - \frac{6Q}{R} \right] = -\frac{5Q}{4\pi\epsilon_0 R} ,$$

where the zero was taken to be at infinity.

- (b) All the charge is the same distance from P . That distance is $\sqrt{R^2 + z^2}$, so the electric potential at P is

$$V = \frac{1}{4\pi\epsilon_0} \left[\frac{Q}{\sqrt{R^2 + z^2}} - \frac{6Q}{\sqrt{R^2 + z^2}} \right] = -\frac{5Q}{4\pi\epsilon_0 \sqrt{R^2 + z^2}} .$$