

$$W = k \left[\frac{V^{-\frac{3}{2}+1}}{(-\frac{3}{2}+1)} \right]_{V_1}^{V_2}$$

$$\left[\int x^n dx = \frac{x^{n+1}}{n+1} \right]$$

$$W = k \left[\frac{V^{-1/2}}{(-1/2)} \right]_{V_1}^{V_2} = k \left[-2 \cdot \frac{1}{\sqrt{V}} \right]_{V_1}^{V_2}$$

$$W = k \left[-\frac{2}{\sqrt{V}} \right]_{V_1}^{V_2}$$

$$W = k \left\{ \left(-\frac{2}{\sqrt{V_2}} \right) - \left(-\frac{2}{\sqrt{V_1}} \right) \right\}$$

$$= k \left\{ 2 \left(\frac{1}{\sqrt{V_1}} - \frac{1}{\sqrt{V_2}} \right) \right\}$$

$$W = 2k \left(\frac{1}{\sqrt{V_1}} - \frac{1}{\sqrt{V_2}} \right)$$

Calculation of work from Indicator Diagram: