Example Find the distance between the lines $3x + 4y = 9$ and $6x + 8y = 15$.

Solution The equations of lines $3x + 4y = 9$ and $6x + 8y = 15$ may be rewritten as

$$3x + 4y - 9 = 0 \quad \text{and} \quad 3x + 4y - \frac{15}{2} = 0$$

Since, the slope of these lines are same and hence they are parallel to each other. Therefore, the distance between them is given by

$$\left| \frac{9 - \frac{15}{2}}{\sqrt{3^2 + 4^2}} \right| = \frac{3}{10}$$