$$\therefore -2X^T y + 2(X^T X \lambda I)\omega = 0$$

$$-2X^T y = -2(X^T X \lambda I)\omega$$

$$X^T y = (X^T X \lambda I)\omega$$

$$\therefore (X^T X + \lambda I)\omega = X^T y$$

Multyping both sides by

$$(X^T X + \lambda I)^{-1}$$

$$(X^T X + \lambda I)^{-1}(X^T X + \lambda I)\omega$$

$$= (X^T X + \lambda I)^{-1} X^T y$$

$$-2X^T y + 2(X^T X \lambda I)\omega = 0$$

$$\therefore X^T y = X^T X \lambda I \omega$$

Now multyply by $(X^T X + \lambda I)^{-1}$

$$(X^T X + \lambda I)^{-1}(X^T X + \lambda I)\omega$$

$$= (X^T X + \lambda I)^{-1} X^T y$$

$$\omega = (X^T X + \lambda I)^{-1} X^T y$$

$$\omega = (X^T X + \lambda I)^{-1} X^T y$$

which is Ridge Regression