Find the General Solution

$$y'' - 4y = 0$$

$$P(x)y'' + Q(x)y' + R(x)y = G(x)$$

$$y'' + 0y' + 4y = 0$$

$$ar^2 + br + c = 0$$

$$1r^2 + 0r - 4 = 0$$

$$r^2 - 4 = 0$$

$$+4 \quad +4$$

$$\sqrt{r^2} = \sqrt{4}$$

$$r = \pm 2$$

$r_1 = 2$

$r_2 = -2$

$ay'' + by' + cy = 0$ | $y = e^{rx}$, $y' = re^{rx}$, $y'' = r^2e^{rx}$

$ar^2e^{rx} + bre^{rx} + ce^{rx} = 0$

$e^{rx}[ar^2 + br + c] = 0$

$ar^2 + br + c = 0$

discriminant is greater than zero, 2 real solutions occur

$$y = c_1e^{r_1x} + c_2e^{r_2x}$$

$$y = c_1e^{2x} + c_2e^{-2x}$$

General solution