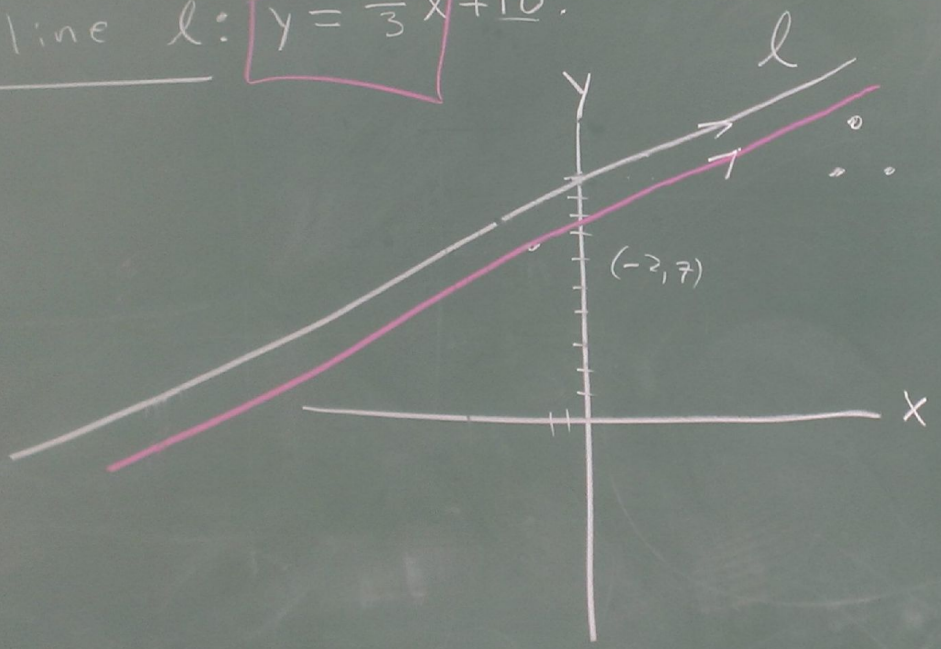
Parallel lines p 34.

Q. Find the equation of the line through Point $(-2, 7)$ and Parallel to the line ℓ: $y = \frac{1}{3}x + 10$.

Soln



ℓ_1 : $3x + 5y = 12$

ℓ_2 : $6x + 10y = 121$

$\ell_1 \parallel \ell_2$?

$m_1 = \frac{-3}{5}$

$m_2 = \frac{-6}{10}$

$m_1 = m_2$ so $\ell_1 \parallel \ell_2$

Show that in $y = mx+b$, m, b const. m must be the slope

Soln

$y_1 = mx_1 + b$

$y_2 = mx_2 + b$

$y = mx+b$

$x_1 \rightarrow \boxed{mx+b} \rightarrow mx_1+b = y_1$

$y = 3x+6$ $\quad 5 \rightarrow \boxed{3x+6} \rightarrow 21$

$(5, 21)$

$\therefore y - 9 = \frac{3}{4}(x-1)$