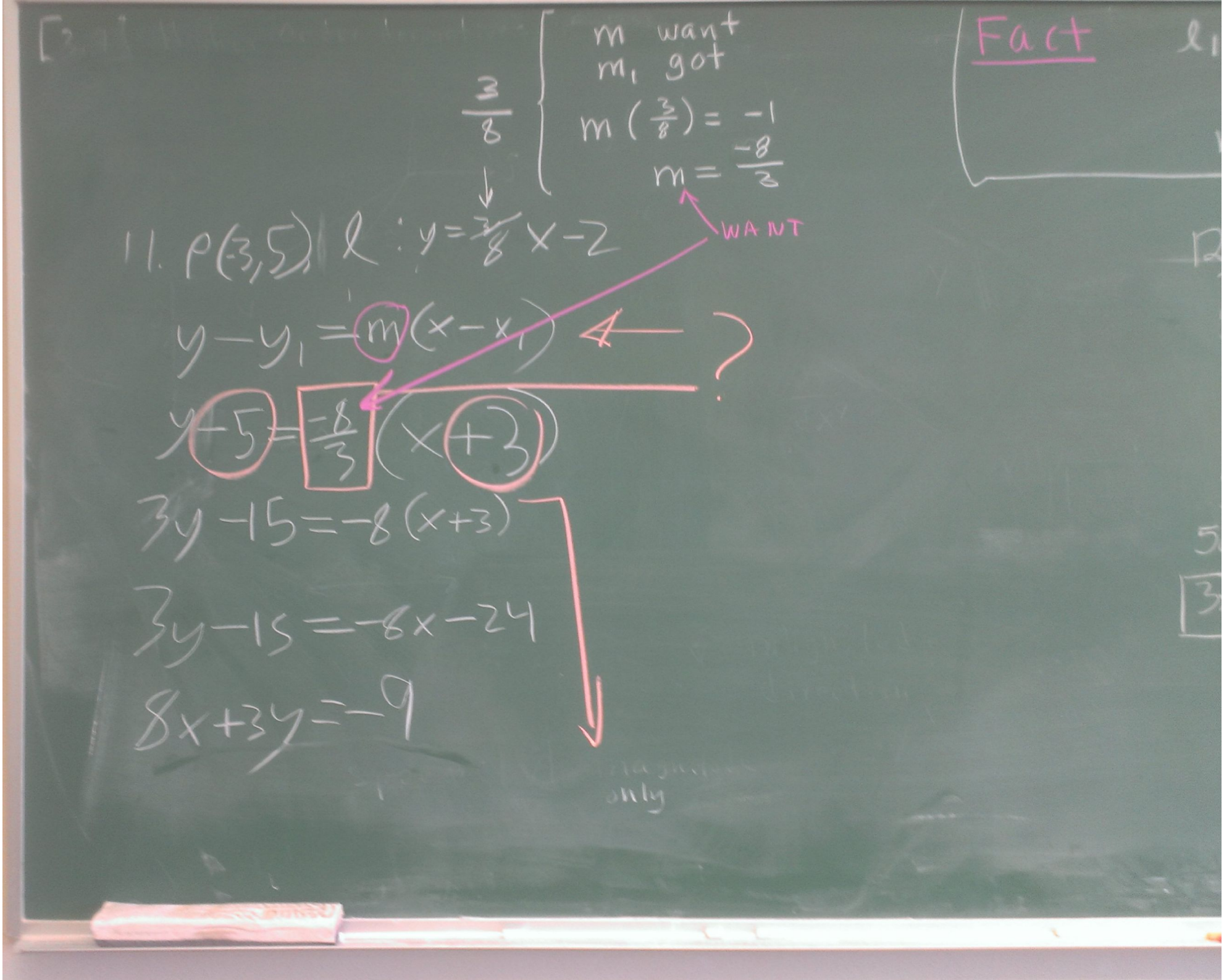
Fact
m want
m₁ got
m(3/8) = -1
m = -8/3
3/8
WANT
11. P(-3,5) l : y = 3/8 x - 2
y - y₁ = m(x - x₁)
y - 5 = -8/3 (x + 3)
3y - 15 = -8(x + 3)
3y - 15 = -8x - 24
8x + 3y = -9

Fact ℓ_1 and ℓ_2 Perpendicular if and only if

$$m_1 \cdot m_2 = -1$$

one slope is the negative reciprocal of the other.

12) $(5,1)$ $\ell: y = \frac{5x}{3} + 2$

$y - y_1 = m(x - x_1)$ ←

$m \cdot m_1 = -1$
$m \cdot \frac{5}{3} = -1$
$m = \frac{-3}{5}$
} Because lines Perpendicular

$y - 1 = \frac{-3}{5}(x - 5)$

$5y - 5 = -3x + 15$

$\boxed{3x + 5y = 20}$

13) $(2,3)$, $\ell: y = 2x - 3$

$y - y_1 = m(x - x_1)$ ←

$m_1 m_2 = -1$
$m_2 = 2$
$-\frac{1}{2} \cdot 2 = -1$
} Because $\ell_1 \perp \ell_2$

$y + 3 = -\frac{1}{2}(x - 2)$ — Done

$2y + 6 = -x + 2$

$x + 2y = -4$

Rearrangement

14] $P(-2,2)$

$l_1 \quad y = \frac{-5}{3}x - 5$

$ax+by$

$ax+by+$

Soln

$$y - y_1 = m(x - x_1)$$

$$y - 2 = m(x + 2)$$

$m = \frac{3}{5}$ correct!

$$y - 2 = \frac{3}{5}(x+2)$$

$$5y - 10 = 3(x+2)$$

$$5y - 10 = 3x + 6$$

$$3x - 5y = -16$$