Section 3.3: Three Forms for the Equation of a Line

① slope-intercept form:

$$y = mx + b$$ where m = slope
b = y-intercept

example: $y = -\frac{3}{4}x + 2$

② standard form:

$$Ax + By = C$$ where A, B, and C are real numbers
and A and B are not both zero

example: $5x - 2y = 7$

note: the coefficients should be, if possible, written as integers

and A should be positive

③ point-slope form

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

→ used when you know a point on the line and the slope and you want to know the equation of the line

slope - intercept form:

example: rewrite the line $3x - 5y = 7$ into slope-intercept form. Then state the slope and y-intercept.
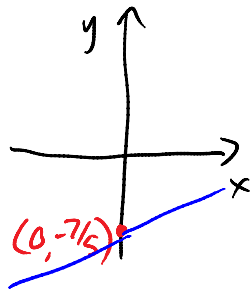
$$3x - 5y = 7$$

$$-5y = -3x + 7$$

$$\boxed{y = \frac{3}{5}x - \frac{7}{5}}$$

slope: $\frac{3}{5}$

y-int: $(0, -\frac{7}{5})$

↗ okay to just write $-\frac{7}{5}$ here

rough sketch:

$(0, -\frac{7}{5})$