

HAT 8/15/17  
HW Efficient Equations of Lines

Working *efficiently* with the three main forms of the equation of a line makes us stronger!

SLOPE-INTERCEPT  $y = mx + b$

POINT-SLOPE

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

STANDARD

$$Ax + By = C$$

1. Find the equation of the line. Answer in STANDARD form.

a. through  $(0, 5)$  and  $(-2, -1)$ .

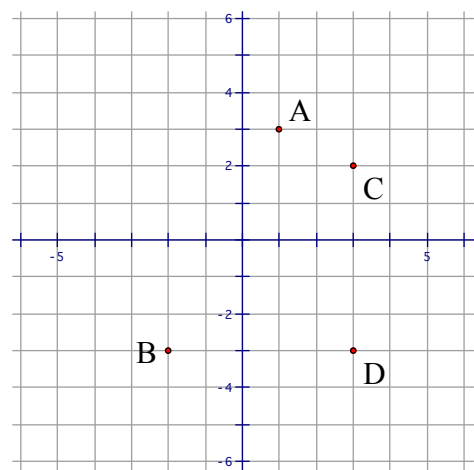
b. through  $(0, 5)$  and  $(-3, 0)$ .

c. through  $(1, 5)$  and  $(-3, 0)$ .

2.

a. Find the equation of  $\overleftrightarrow{CD}$ .

b. Find the equation of  $\overleftrightarrow{BD}$ .



HAT 8/15/17

HW Efficient Equations of Lines

Given  $A (0, -2)$  and  $B (-2, 6)$ , with  $\ell_1 : 6x - 3y = 15$  and  $\ell_2 : (y + 3) = -4(x - 1)$ , find the equation of each line. Answer in STANDARD form.

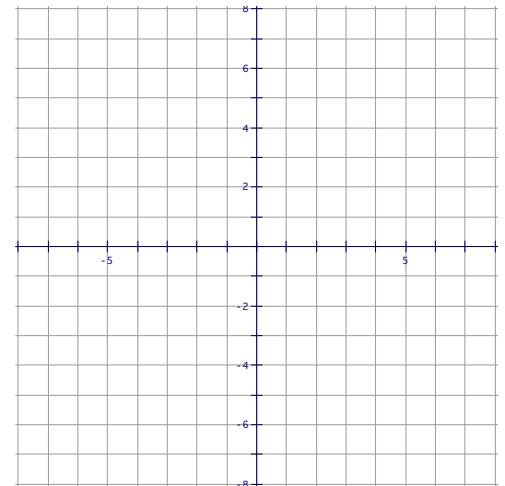
1) through  $A$ , perpendicular to  $\ell_1$

2) through  $A$ , parallel to  $\ell_2$

3) through  $B$ , perpendicular to  $\ell_2$

4) through  $B$ , parallel to  $\ell_1$

5) Without changing the form of  $\ell_1$  or  $\ell_2$ , QUICKLY graph these lines. Eyeball the point of intersection of these two lines and call this point  $C$ .



6) Find the  $x$ -intercept of the line that passes through  $C$  and is perpendicular to  $\ell_1$ .