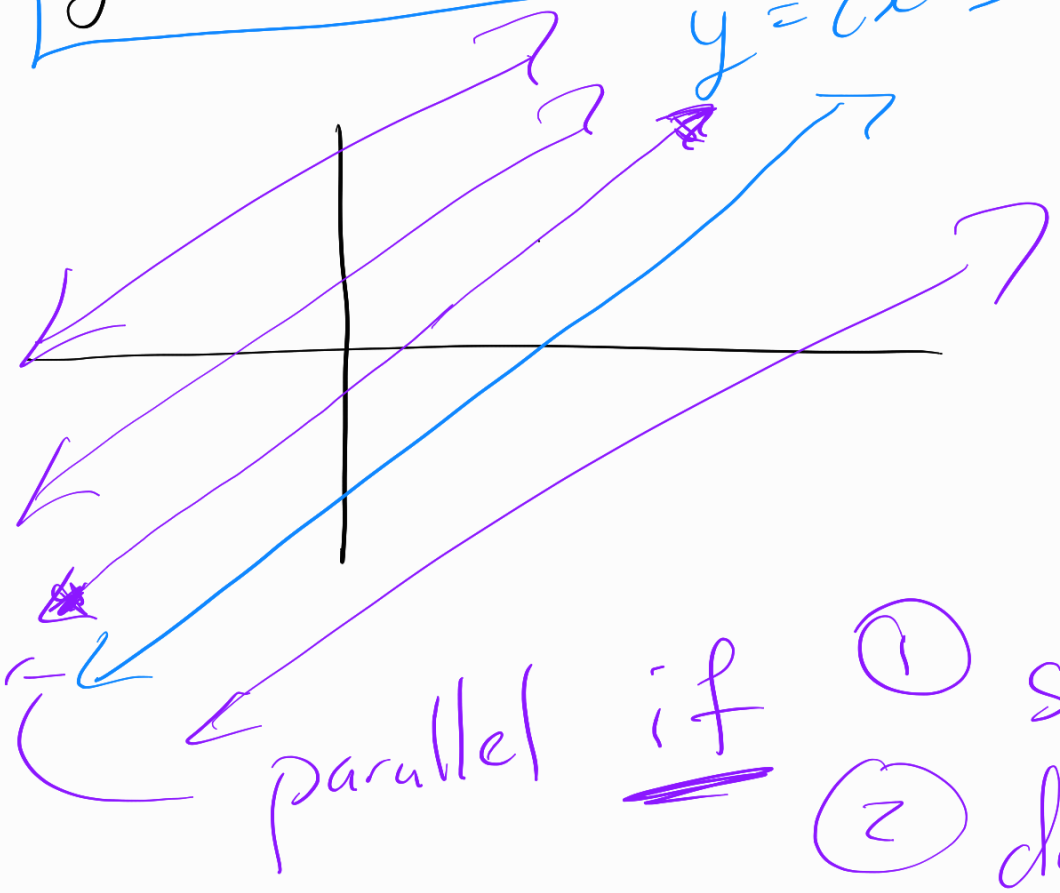
Parallel & Perpendicular Lines

ANY LINE: $y = mx + b$
↑
non-vertical

① slope
② a point on line

$y = 2x - 3$



parallel if ① same slope
② different y-int

what's line eq. for a

line parallel to $y = 2x - 3$

passing thru $(1, 2)$

$$y = 2x + b$$

$$2 = 2(0) + b$$

$$b = 0$$

Final ans: $y = 2x$

Find line eq. parallel to

$$y = \frac{3}{}$$

$y = \frac{3}{7}x + 11$

passing the pt $(7, 2)$

$y = mx + b$

- $y = \frac{3}{7}x + b$

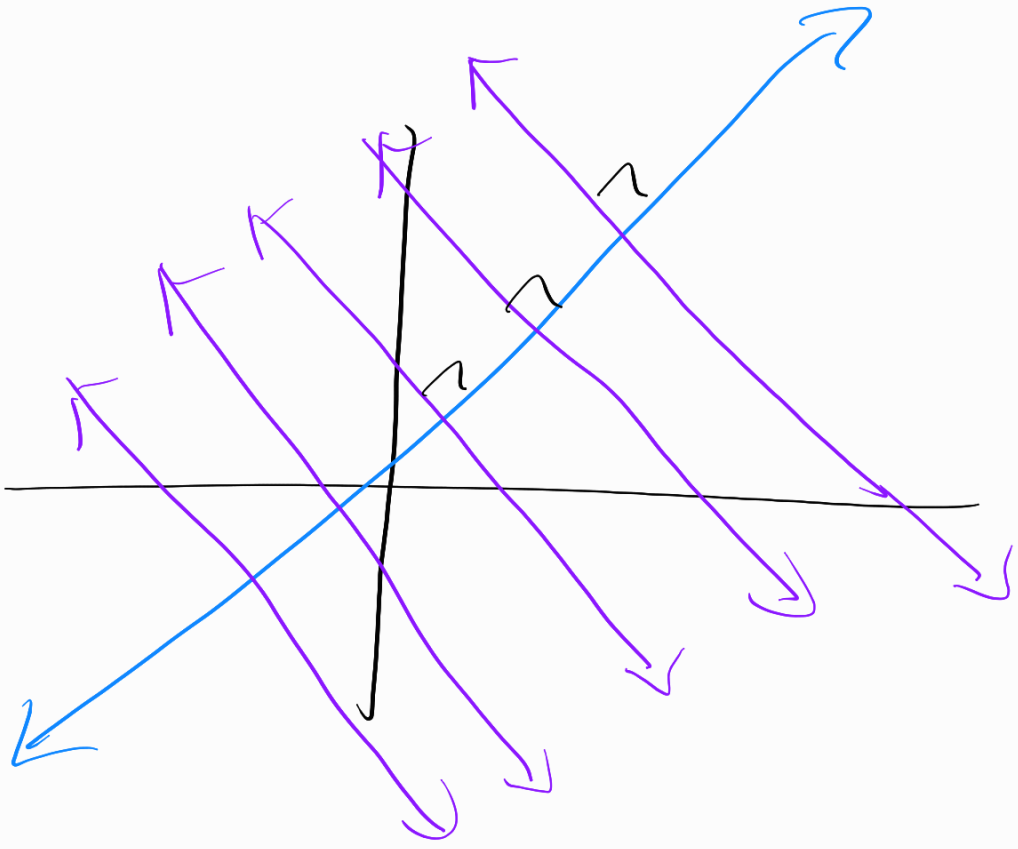
$2 = \frac{3}{7}(7) + b$

$1 = \frac{21}{7} + b$

$2 = 3 + b \Rightarrow b = -1$

$y = \frac{3}{7}x - 1$

Perp lines



- $y = 2x - 3$

Gimme perp line passing

$(4, 7)$?

Parallel lines - $y = mx + b$

Perpendicular

$$2m = -1$$

$$\hookrightarrow m = -1/2$$

$$y = -\frac{1}{2}x + b$$

$$7 = -\frac{1}{2}(4) + b$$

$$\Rightarrow b = 9$$

$$y = -\frac{1}{2}x + 9$$

Quiz next Week

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

Find (1) line parallel to ☐ passing thru (20, 23)

(2) line perp. to ☐ passing thru (3, 5)

$y = mx + b$