

## 9/9 Notes

QOB: 1b, 2e, 4a & c,  
4b & d, 6

warm up

1. What's true about parallel lines?
2. What's true about  $\perp$  lines?

goal

- understand  $\parallel$  &  $\perp$
- point-slope

QUIZ

Topic: point-slope form

- go over ~~parallel~~ parallel lines have same slope
- $\perp$  lines are opposite reciprocals

use white boards

ex find the eq. of line  $\parallel$  to  $y = 3x + 5$  through pt.  $(6, -3)$

$$y = 3x + b$$

$$-3 = 3(6) + b \quad \text{so } y = 3x - 21$$

$$-3 = 18 + b$$

$$-21 = b$$

ex find the eq. of line  $\perp$  to  $y = 3x + 2$  through pt.  $(6, 1)$

$$y = -\frac{1}{3}x + b$$

$$1 = -\frac{1}{3}(6) + b \quad \text{so } y = -\frac{1}{3}x + 3$$

$$1 = -2 + b$$

$$3 = b$$

other examples

$$y = 4x + 2 \quad p. (-4, 6) \quad y = \frac{2}{3}x + 1 \quad p. (-6, 2)$$

$$3y - 6x = 9 \quad p. (5, 3) \quad 3y - 18x = 10 \quad p. (2, 9)$$

1.

point-slope form  $y - y_1 = m(x - x_1)$

Annotations: "stay" with a curved arrow above the equation; "plug in" with an upward arrow under  $y_1$ ; "slope" with an upward arrow under  $m$ ; "plug in" with an upward arrow under  $x_1$ .

[ex] find point-slope eq. given pts  $(2, 8)$  &  $(-1, 5)$

slope:  $\frac{8-5}{2-(-1)} = \frac{3}{3} = 1$

$y - 5 = 1(x + 1)$

\* notice if it's a negative point becomes positive in equation

can go from point-slope to  $y = mx + b$

[ex] find point-slope eq. with  $(4, 9)$  &  $(2, 6)$  then move to slope-int.