

3.1 Writing Equations

4 Methods

1. slope-intercept

$$y = mx + b$$

2. vertical line

$$x = a$$

3. horizontal line

$$y = b$$

4. Point-slope

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

Slope-intercept

write the equation of
a line with $m = -\frac{2}{3}$ thru
 $(0, 4)$.

$$y = mx + b$$

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

$m = -1$, thru $(0, -7)$

$$y = mx + b$$

$$y = -1x - 7$$

Vertical lines

Write the equation of
a vertical line through
(2, 4).

$$x = a$$
$$x = 2$$

Ex: (-4, 3)

$$x = -4$$

horizontal lines

Write the equation
of a horizontal line
thru $(3, -5)$

$$y = b$$

$$y = -5$$

Point-Slope form

Write the equation of
a line thru $(5, 6)$ with
 $m = 2$.

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

$$y - 6 = 2(x - 5)$$

$$y - 6 = 2x - 10$$

$$y = 2x - 4$$

Point slope
Distribute
undo constant
Slope-Intercept

Write the equation of
a line thru $(7, 3)$ and
 $(5, -5)$.

$$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{3 - (-5)}{7 - 5} = \frac{8}{2} = 4$$

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

$$| \quad y - 3 = 4(x - 7)$$

$$y - 3 = 4x - 28$$

+3 +3

$$y = 4x - 25$$

HW: p. 168

2-50 even

Odd 5 extra credit