

Module 2: Linear equations

Ann:

- Wiki 1 today (slides?)
- test 1 Sept. 4-5th
- introduce yourself in BB.

Content: Intercepts

BB mod 2 notes

Wiki: last 30 min

W2W1

2.2 linear

Ann: - No class
Monday

(p)review: 1) find x, y ints of
(81%) $y = 4 - x^2$

(81%) 2) perpendicular line through
 $(1, 3)$ to the line

that goes through $(3, 4)$ and $(4, 7)$

Ans: $m_0 = \frac{7-3}{4-3} = 3$ $m_{\perp} = -\frac{1}{3}$ ($m_0 \cdot m_{\perp} = -1$)

$$L_{\perp}: y - 3 = -\frac{1}{3}(x - 1)$$

w2w2
(65%) 3) Aleks: MZ Choosing a graph to fit
narrative.

(63%) 4) Your grandmas car was bought
for 35,000 USD. Your family
only got 18,000 USD for it.
By what percent did it depreciate?

Content: Lines:

Equations for a line:

standard form: $Ax + By = C$

pros: - can describe any line
- easy to find x, y -ints.

cons: not unique.

Slope y-int: $y = mx + b$

pros: - in function form. ($y(x) = mx + b$)
- unique

cons: - more computation to find
- can't do vert. lines.

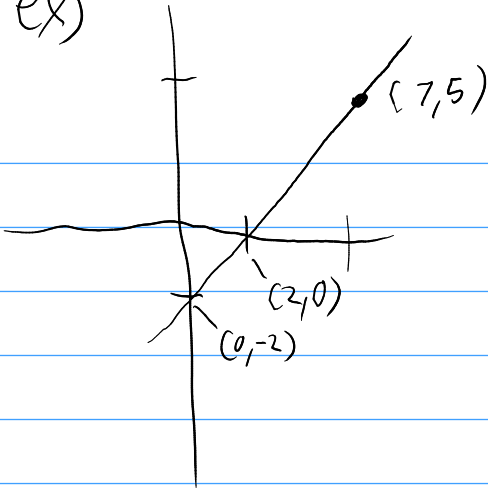
Point slope: $y - y_1 = m(x - x_1)$

pros: - less computation

cons: - can't do vert. lines.

w2w3

ex)



$$m = \frac{5-0}{7-2} = 1$$

$$\text{pt-slope: } y - 5 = 1(x - 7)$$

$$\text{slope int: } y = \widehat{1(x-7)} + 5 \\ = x - 7 + 5$$

$$y = x - 2$$

$$\text{Stand: } y - x = -2$$

$$x - y = 2$$



W2W4
Scl 14

Relations between lines

Parallel

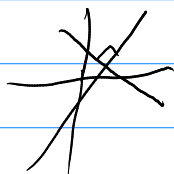
(//): Two lines

are // iff they share
same slope



Perpendicular (⊥): Two lines

are ⊥ if they meet at a
90° angle. Algebraically,



$$m_2 = -\frac{1}{m_1} \text{ or } -1 = m_1 \cdot m_2.$$

Oblique: neither // nor ⊥.

Now

BB MZ p2-4.

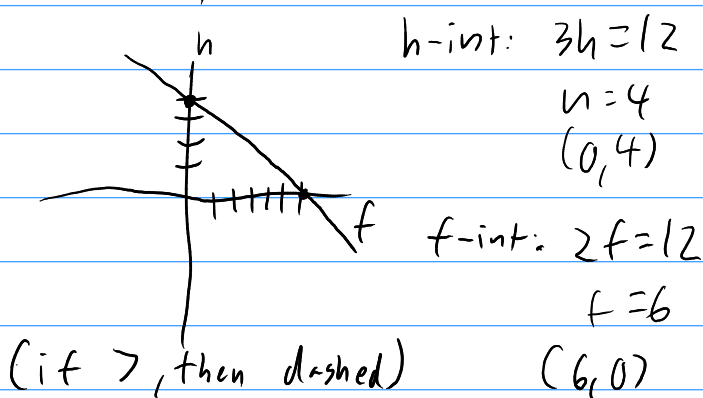
W2F1

Ann. - wiki 2 today - due sat. morning
- Test 1 sept. 4th + 5th

(P)review: 1) you need ^{at} least 12 crafts for a fair.
 you can make 2 flowers an hour
 and 3 hogs an hour. Plot this
 inequality.

Ans: let f be hours on flowers,
 h be hours on hogs.

$$2f + 3h \geq 12$$



2) a) Find the line through $(-3, 4)$
 and $(1, 2)$.

work: $m = \frac{4-2}{-3-1} = \frac{2}{-4} = -\frac{1}{2}$

$$y - 2 = -\frac{1}{2}(x - 1)$$

b) Find line parallel (\parallel) to (a) through
 $(1, 3)$: $m_0 = m_{\parallel}$

$$y-3 = -\frac{1}{2}(x-1)$$

(c) Perpendicular (\perp) to (a) through
 $(\pi, 700)$: $m_{\perp} = \frac{-1}{m_0} = -\frac{1}{-\frac{1}{2}} = 2$

$$y-700 = 2(x-\pi)$$

3) Finding the multiplier to give
 a final amount after a % \uparrow or \downarrow .
 ↳ Use Aleks one.

Now wiki

when done — mark out group #
 — work on test 1 review.
 — when all groups done, practice
 exam style.

