1.3: prob 35 43
1.5: prob 17 18

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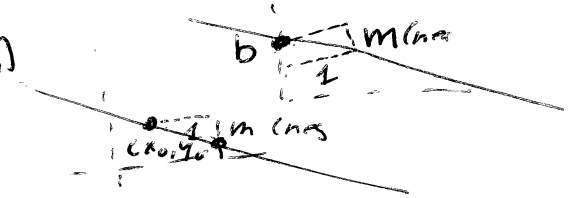
LINES $y = b + mx$ SLOPE-INTERCEPT

$y = y_0 + m(x - x_0)$



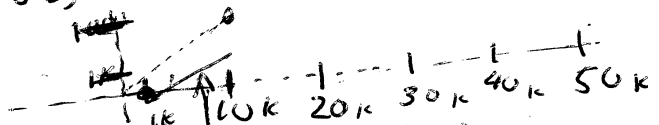
#35 $5000 $60 permit

#43 Between 1,000 10000 50/copy UNITS 50/copy = 500000/10000

10,000 → 20,000 40/copy

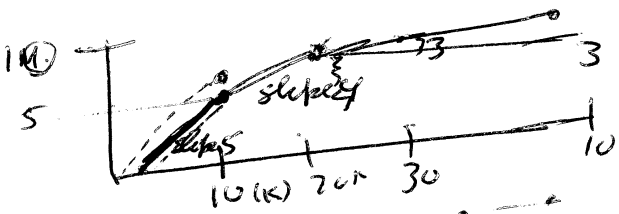
20 ... → 50,... 35¢

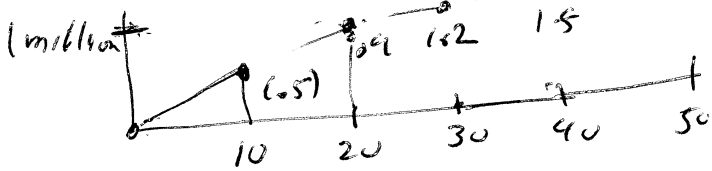
Graph



(No overhead slope 50 = 50000/1000

Different Scales





Unit 1

LIMITS

Example (100000 A

$$C(x) = \frac{8x^2 - 636x - 320}{x^2 - 68x - 960}$$

near $x = 80\overline{)960} = 12$

GETLUCKY DEN = $(x+12)(x-80)$

Tob $8\overline{)636}$ 56

$8x^2$ $2(4x^2 - 318 - 160)$

$= 4(2x^2 - 159 - 80)$

$= 4(2x+1)(x-80)$

$2x^2$ $2x^2$

$23\overline{)161}$ 14 21

$$C(x) = \frac{4(2x+1)(x-80)}{(x+12)(x-80)}$$

If x is close to 80

$\approx \frac{4(161)}{92} \approx \frac{23 \cdot 7}{23} = 7$

Idea of a function f sat
If x is near c, then f(x) is near L

Means Words as x approaches c
the values f(x) ap

(p.59) If f(x) gets closer and closer to a
as x gets closer and closer to c, then

"$\lim_{x \to c} f(x) = L$"

Read "the limit, as x [approaches] c, [of] f(x)
is [is equals] L

(p.60) It is important to remember that limits
describe the behavior of a function near a
part. pt., not necessarily at the point itself
[italics]
In lucky example, f(80) was not even
defined (we tried to ÷ 0)

$\frac{x^2-4}{x-2}$ example as x is near 2

Rules [p.62]
Normal ±, Mult, Division (don't ÷ 0)

Common formulas

	Constants
$\lim_{x \to c} x = c$	all c
$\lim_{x \to c} \sqrt{x} = \sqrt{c}$	some case x's, c are both non-negative; $c=0$ is a one-sided limit
$\lim_{x \to c} x^2 = c^2$	all x
$\lim_{x \to c} \frac{1}{x} = \frac{1}{c}$	$c \neq 0$

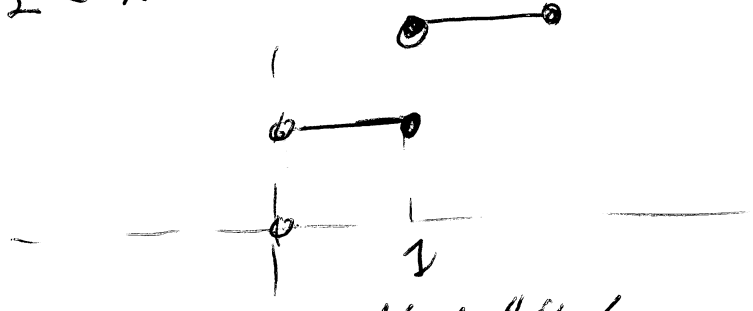
Postage Stamp

Weight x in ounces

forever stamps

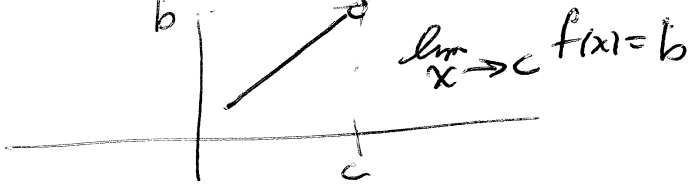
$0 < x \leq 1$ — 1

$1 < x \leq 2$ — 2



continuous except at "jumps"

Graphical limit



polynomials work 2009 0916 4/

(17) $\lim_{x \to 1} \frac{x^2 - 1}{x - 1}$

(18) $\lim \frac{9 - x^2}{x - 3}$

For usual formulas try "plugging in c"
(the individual parts have the ~~right~~ correct limit)
and if the form makes sense (don't divide by 0, etc)
then the ~~limit~~ indicated number is the correct one
do not Rework [Think] to get
some form of $\frac{x^2-1}{x-1}$ except x not 1

Variations One sided $x \to \infty$ $[-\infty]$
infinity $f(x) \to \infty$ (sign