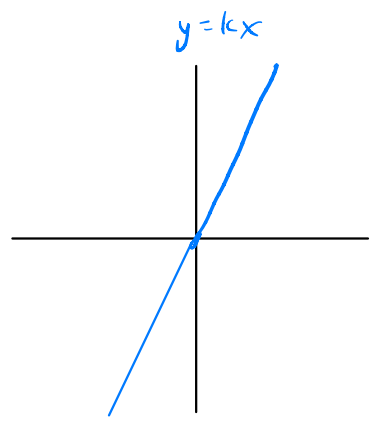


lany

2.26-22 math 73C

44) $0.14 = k(2.75)$

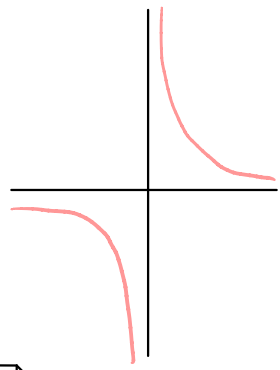
$k = \frac{0.14}{2.75} = 0.05 \text{ B}$



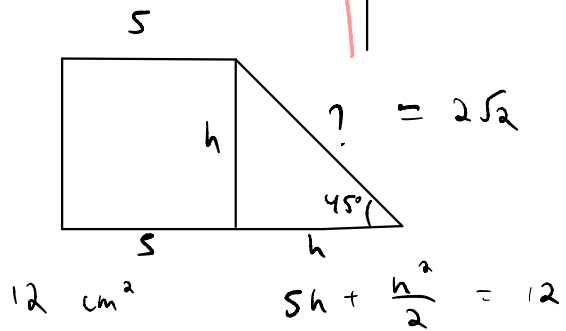
$x \uparrow, y \uparrow \Rightarrow$ direct variation

$3 \cdot 1 = 3$
 $6 \cdot \frac{1}{2} = 3$

$xy = k$
 $y = \frac{k}{x}$



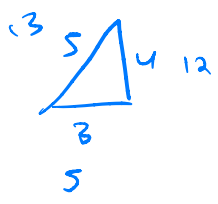
sol



$\frac{1}{2}h(b_1 + b_2)$

$b_1 = 5 + h$
 $h = h$

$b_2 = 5$



Whenever you see

$3-4-5, 6-8-10$
 $5-12-13, 10-24-26$

$10h + h^2 = 24$

$h^2 + 10h - 24 = 0$

$(h+12)(h-2) = 0$

$1:1:\sqrt{2} \quad 45^\circ-45^\circ-90^\circ$
 $1:\sqrt{3}:2 \quad 30^\circ-60^\circ-90^\circ$

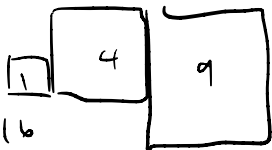
$h = -12 \quad h = 2$

51)

$$15 + 1 = 16$$

$$8 + 1 = 9$$

$$3 + 1 = 4$$



16

25

Integers 1-18, $3b = 62$
not possible

18	+	7	
17	+	8	
16	+	9	
15	+	10	1
14	+	11	2
13	+	12	3
12	+	13	4
11	+	14	5
10	+	15	6

Must have these, start with these 3

$\{a, b\}$ denotes that it could be either a or b

Note that if 15 goes with 1, then all of 1-18 are used

52) 1 2 3 4

1 2 3 4 ...

arithmetic sequence

common difference d added each term

$A \rightarrow$ Any

let $d=0$

Come up with one sequence, and the condition must be true for all sequences, or do it by reasoning

$\frac{3}{4}$ $\frac{3}{4} + d$ $\frac{3}{4} + 2d$ $\frac{3}{4} + 3d$ $\frac{3}{4} + 4d$ $\frac{3}{4} + 5d$ $\frac{3}{4} + 6d$

$\frac{3}{4} + 0d$

$\frac{3}{4} + 1d$

$\frac{3}{4} + 2d$

$\frac{3}{4} + 3d$

$\frac{3}{4} + 4d$

$\frac{3}{4} + 5d$

$\frac{3}{4} + 6d$

$\frac{3}{4} + 0d$

$\frac{3}{4} + 1d$

$\frac{3}{4} + 2d$

$\frac{3}{4} + 3d$

$\frac{3}{4} + 4d$

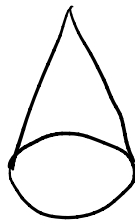
$\frac{3}{4} + 5d$

$\frac{3}{4} + 6d$

$\frac{3}{4} + 7d$

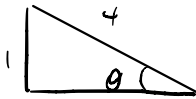
$\frac{3}{4} + 3.5d$

(60) **basic section** any cross section of a cone



circle
hyperbola
parabola
ellipse

58)



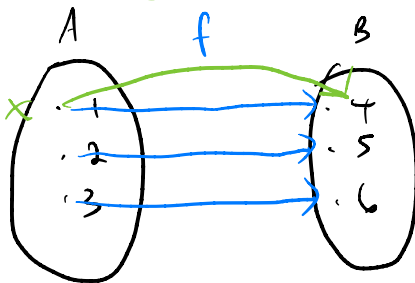
$$\theta = \sin^{-1}\left(\frac{1}{4}\right)$$

$$\sin \theta = \frac{1}{4}$$

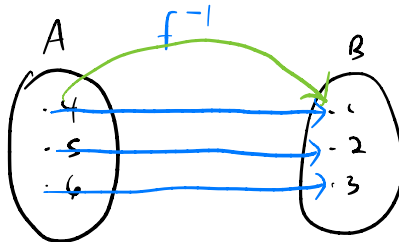
$$\sin^{-1}(\sin(\theta)) = \sin^{-1}\left(\frac{1}{4}\right)$$

$$\theta = \sin^{-1}\left(\frac{1}{4}\right)$$

$$f^{-1}(f(x)) = x$$



$$f: A \rightarrow B$$



$$f^{-1}: B \rightarrow A$$

Domain

Range

$$5b) a^b = (a^j)^c$$

The powers can be different

$$\sqrt[3]{3^j} = 27^{1/6} \quad \text{powers of 3}$$

But the bases are formed from the same base

$$(3^{1/2})^j = (3^3)^{1/6}$$

$$\sqrt[3]{3} = 3^{1/3}$$

$$4 = 2^2$$

$$27 = 3^3$$

$$8 = 2^3$$

$$3^{1/2 j} = 3^{3/6}$$

$$\Rightarrow \frac{1}{2} j = 3/6$$

find values by guess & check

$$\frac{1}{2} \frac{j}{6} = 3$$

$$\frac{j}{6} = 6$$

53) "factored form" means $(x+a)(x+b) \Rightarrow$ gives D's

\Rightarrow "reaches ground at x seconds"

44) A B

Matrix multiplication

columns = # rows

rows cols rows cols

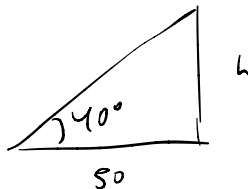
$(m \times n) (n \times p)$



cols = # rows

Tree

42)



39)

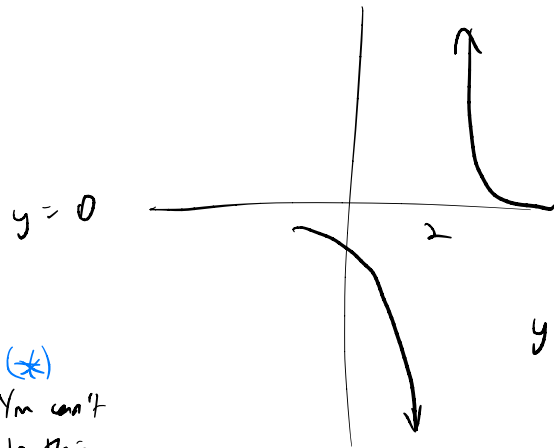
53)

60)

59) $y = 2$

$$\frac{2x^2}{x^2} = \frac{2}{1} = 2$$

horizontal asymptote : you're dealing with infinity



asymptotic complexity

"what happens when input size \rightarrow infinity"

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

$$x \rightarrow \infty$$

$$\frac{1}{\infty - 2}$$

$$\frac{1}{\infty} = 0 \quad (*)$$

$x = 2$ is a V.A.

(*)
You can't do this in formal math in precalc, but it's a good way to reason about it

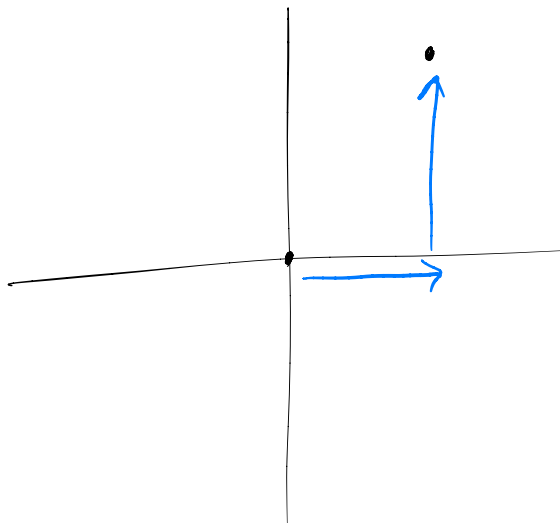
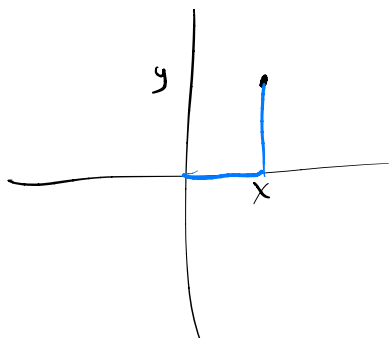
$$\lim_{x \rightarrow \infty} \frac{2x^2 - 18}{x^2 - 50000x} = \lim_{x \rightarrow \infty} \frac{2x^2}{x^2} = 2$$

H.A. $y = 2$

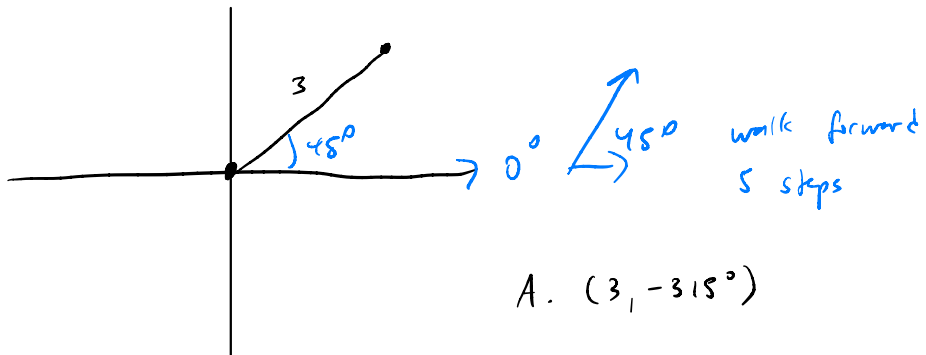
x	x^2
1	1
10	100
100	10 000
1000	1 000 000
...	...

when there's x squared ignore x

57)



59)



Any point can be represented as (r, θ)

θ = face θ angle (starting at 0° , East)
 r = walk forward r steps

$$57) 3^{x+1} = 9^{x-2} = 3^{2(x-2)}$$

$$3^{x+1} = 3^{2x-4}$$

$$x+1 = 2x-4$$

B. 1

$$2x-4 = 2x-4 \Rightarrow \text{infinite solutions}$$

$$\begin{array}{l} 2x+1 = 2x+2 \\ 1 = 2 \end{array} \Rightarrow \text{no solutions}$$