بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

বিস্‌মিল্লাহির রাহ্‌মানির রাহীম

উদ্ভাস

একাডেমিক এন্ড এডমিশন কেয়ার

Class 10: H.Math (Chapter 6.2 & 6.3)

Uses of Inequality
&
Linear Inequality with two variables

Lecture HM-19

Chapter – 6.2

Uses of Inequality

Things We Will Learn

- How to express different situations with inequality
- How to express solutions in inequality

গাণিতিক সমস্যা

Md. Sohrab bought x kg mango at the rate of Tk. 70 per kg. He gave a note of Tk. 500 to the seller. The seller returned him rest of the money with x notes of Tk. 20

↳ and some other notes of different values ✗

1 kg → 70 tk

∴ x → 70x tk

20 → x → 20x tk

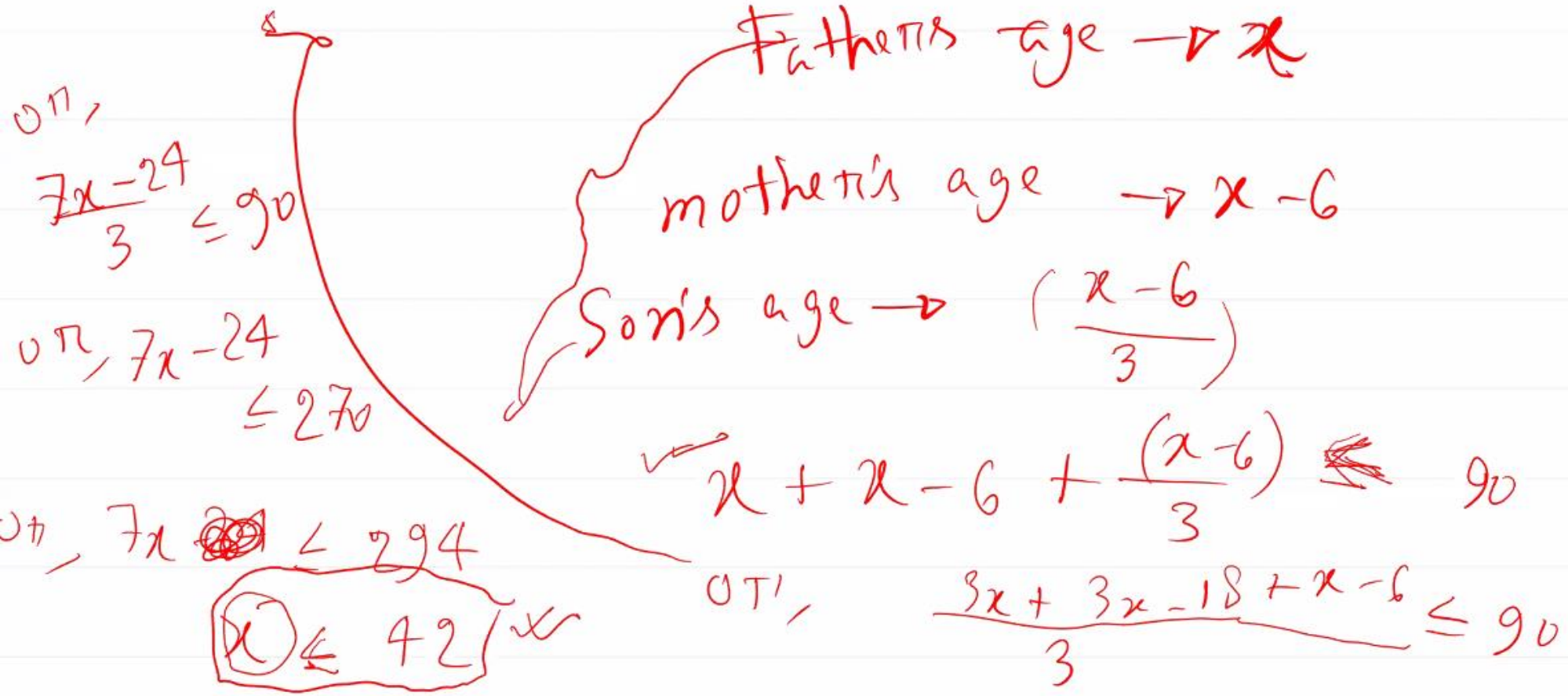
70x + 20x < 500

or, 90x < 500

∴ x < 500/90 or x < 5.5

গাণিতিক সমস্যা

The age of the son is one-third of that of the mother. The father is 6 years older than the mother. The sum of the ages of these three persons is not more than 90 years. Express the age of the father in terms of an inequality.



Poll Question 01

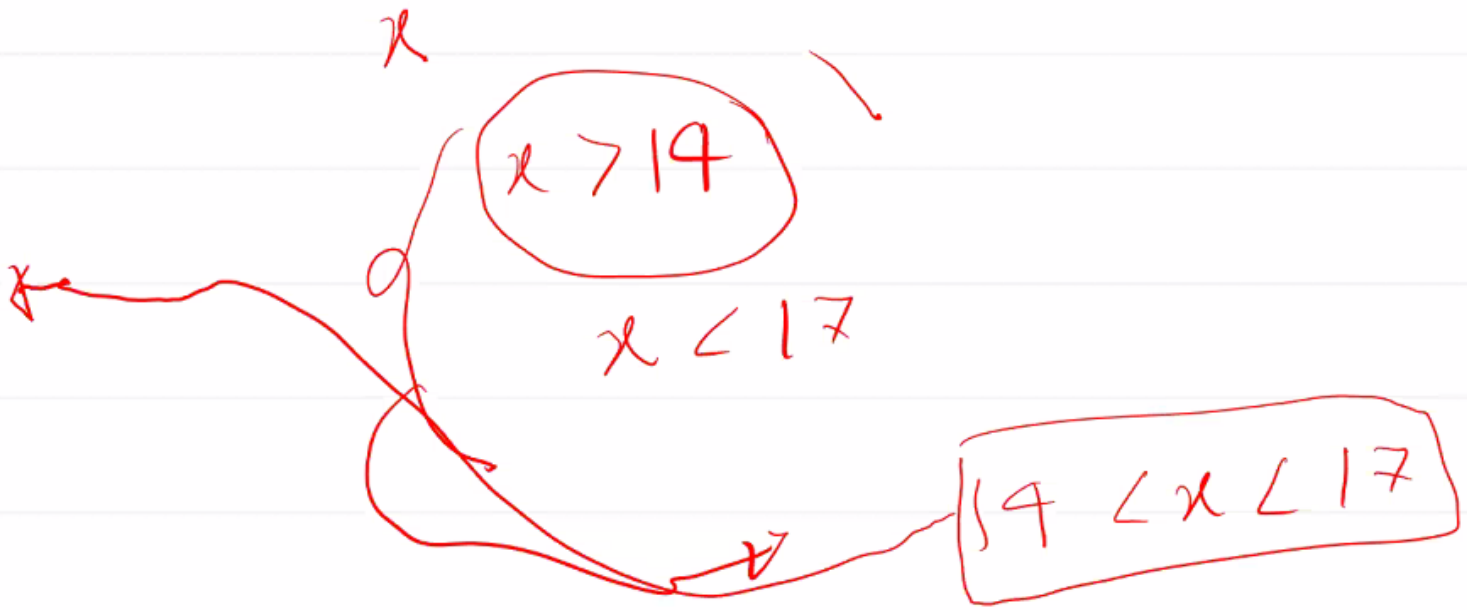
Jeny appeared at the junior scholarship examination at the age of 14 years. She will appear at the SSC examination at the age of 17 years. Exapress her present age in terms of inequality.

(a) $x < 14$

(b) $x > 14$

(c) $x < 17$

(d) $14 < x < 17$



গাণিতিক সমস্যা

A boarding house requires 4x kg of rice and $(x-3)$ kg of pulses every day and it does not require more than 40 kg of rice and pulses in total.

$4x + (x-3) \leq 40$

বা, $4x + x - 3 \leq 40$

বা, $5x - 3 \leq 40$

বা, $5x \leq 43$

$\therefore x \leq \frac{43}{5}$

fraction

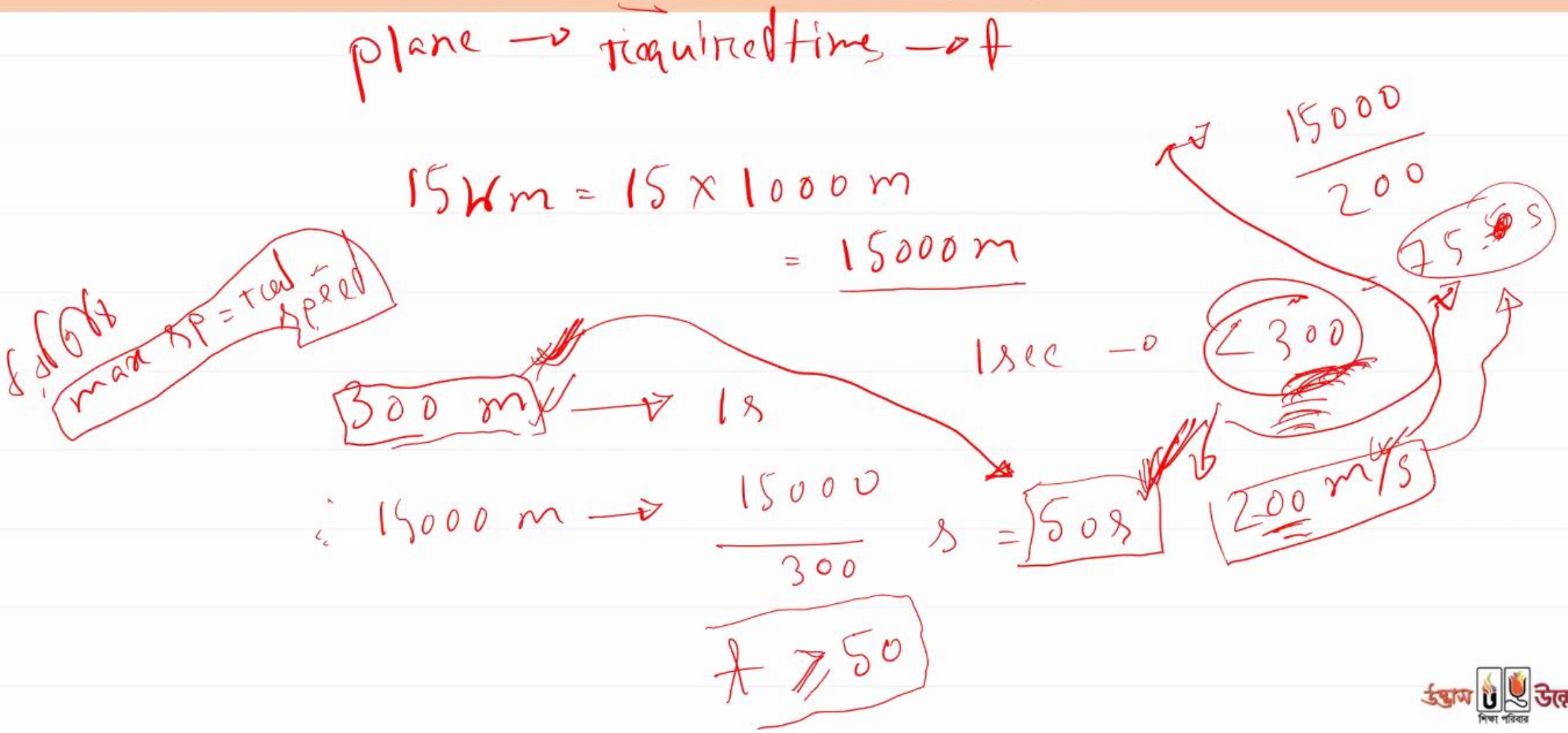
$x - 3 > 0$

বা, $x > 3$

$3 < x \leq \frac{43}{5}$

গাণিতিক সমস্যা

The maximum speed of a jet-plane is 300 meters/sec. Express the time required by the plane to cover 15 km in the form of inequality.



Poll Question 02

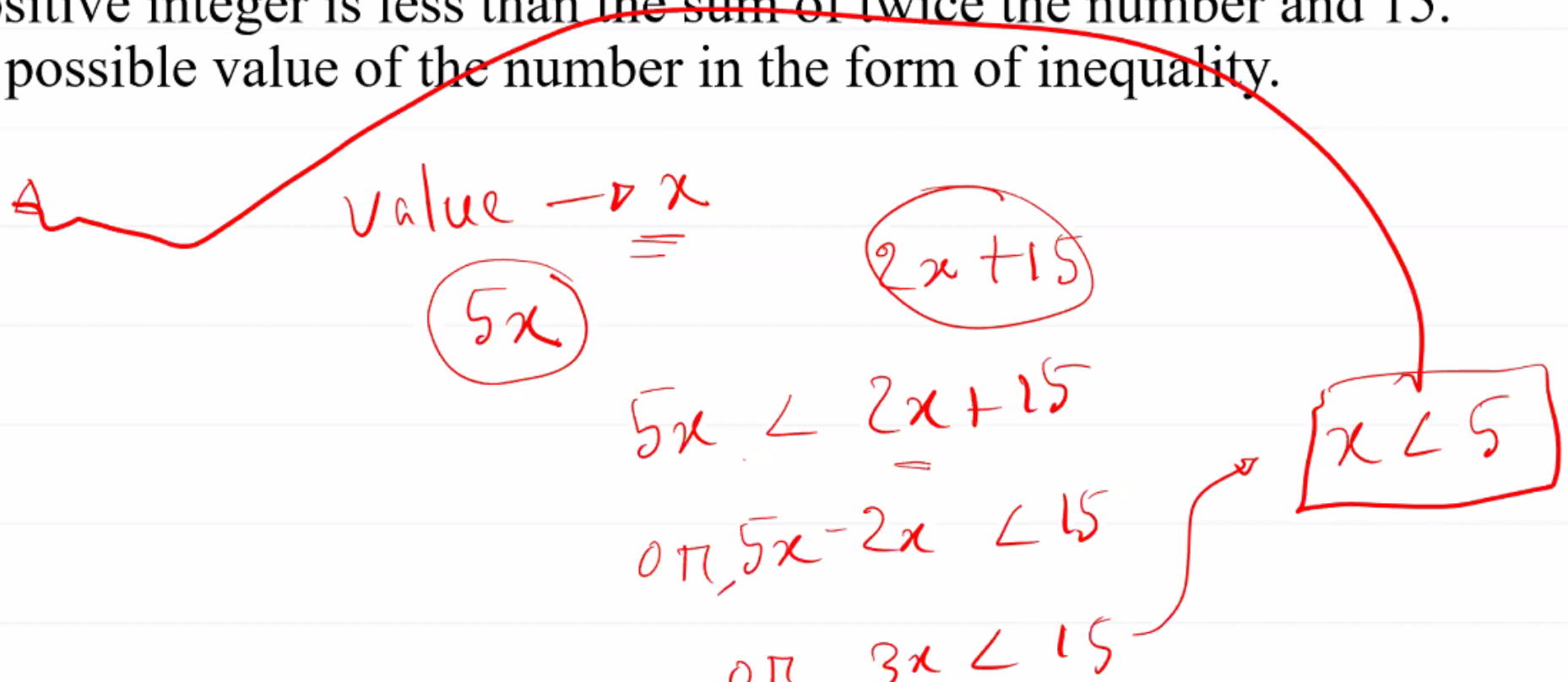
5 times a positive integer is less than the sum of twice the number and 15. Express the possible value of the number in the form of inequality.

(a) $x < 5$

(b) $x > 10$

(c) $x > 10$

(d) $x > 5$



Chapter 6.3

Linear Inequality with two variables

Graph

$x + y - 3 = 0$

or, $y = 3 - x$

x — independent var.

y — dependent var.

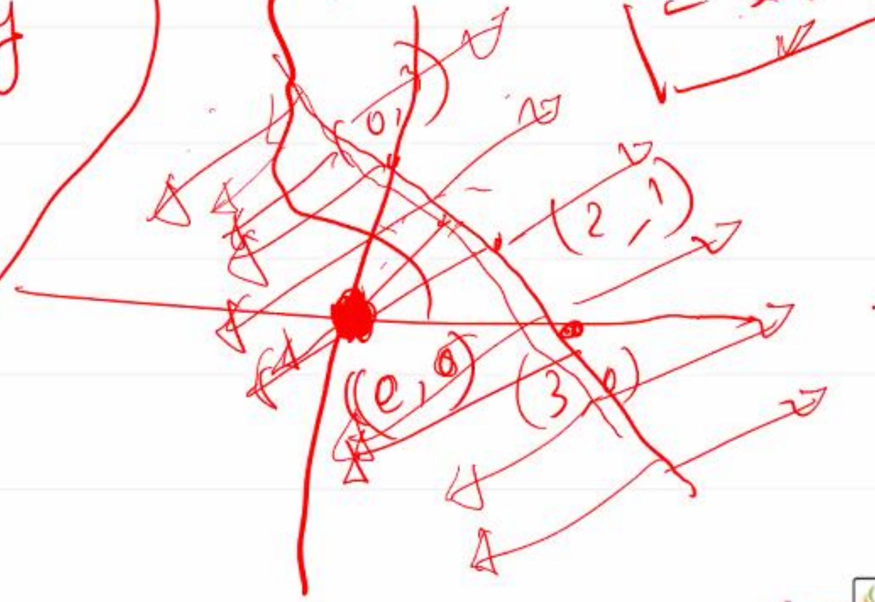
x	0	3	2
y	3	0	1

$(x, y) = (0, 3), (3, 0), (2, 1)$

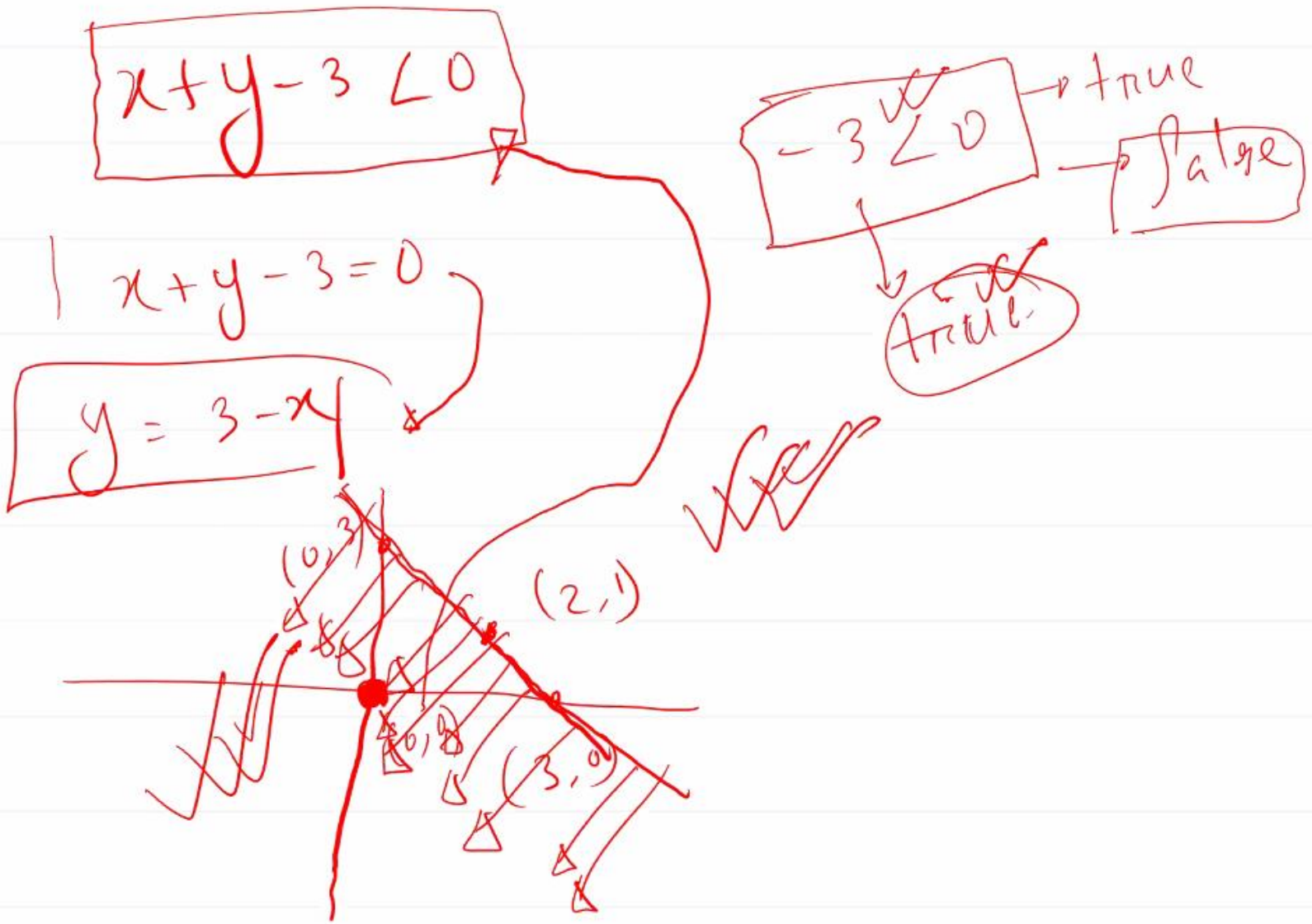
$x + y - 3 = 0$

$x + y - 3 > 0$ — true / false

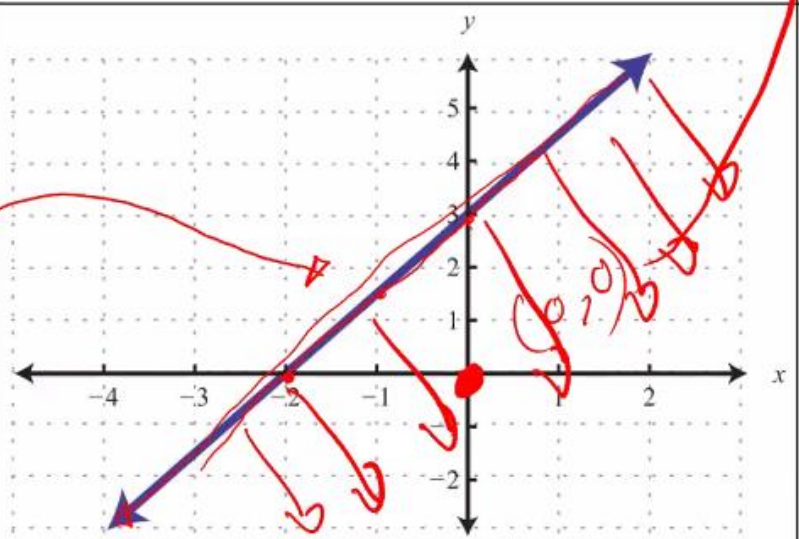
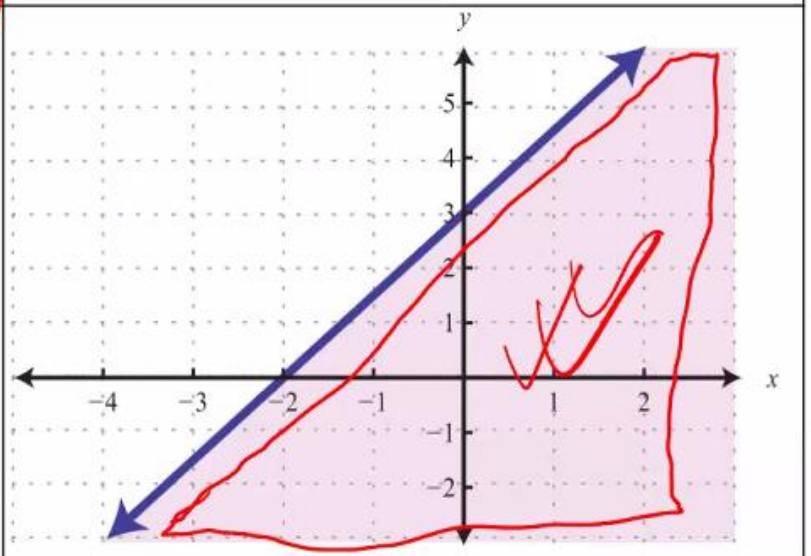
$-3 > 0$



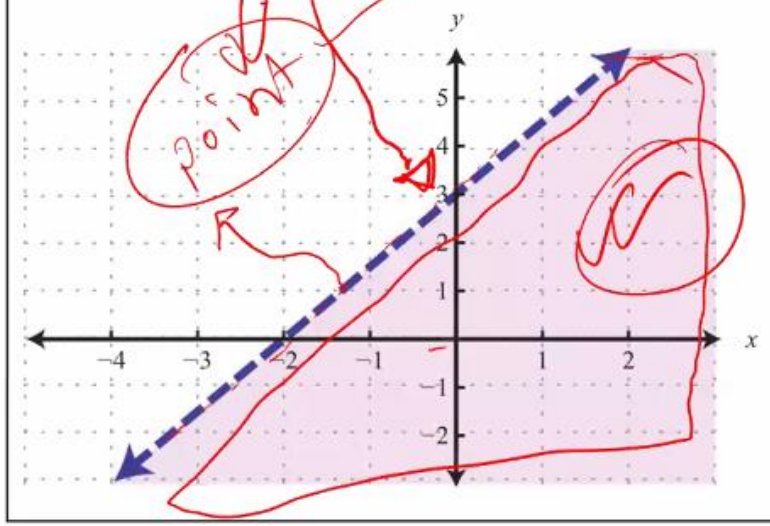
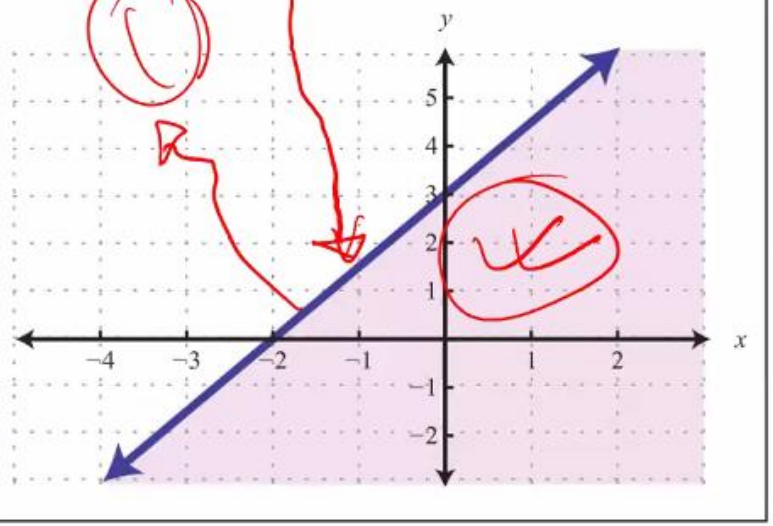
Graph



Graph

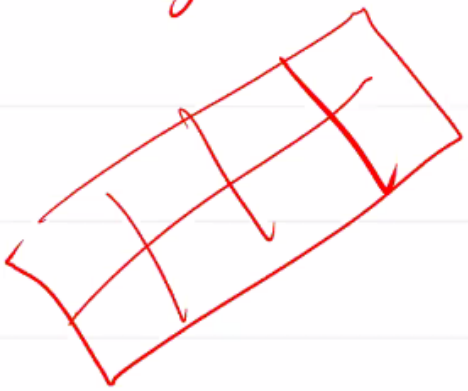
Linear Equation	Linear Inequality
$y = \frac{3}{2}x + 3$	$y \leq \frac{3}{2}x + 3$
	

Graph

Non-Inclusive Boundary	Inclusive Boundary
$y < \frac{3}{2}x + 3$	$y \leq \frac{3}{2}x + 3$
	

$y \geq 2x$

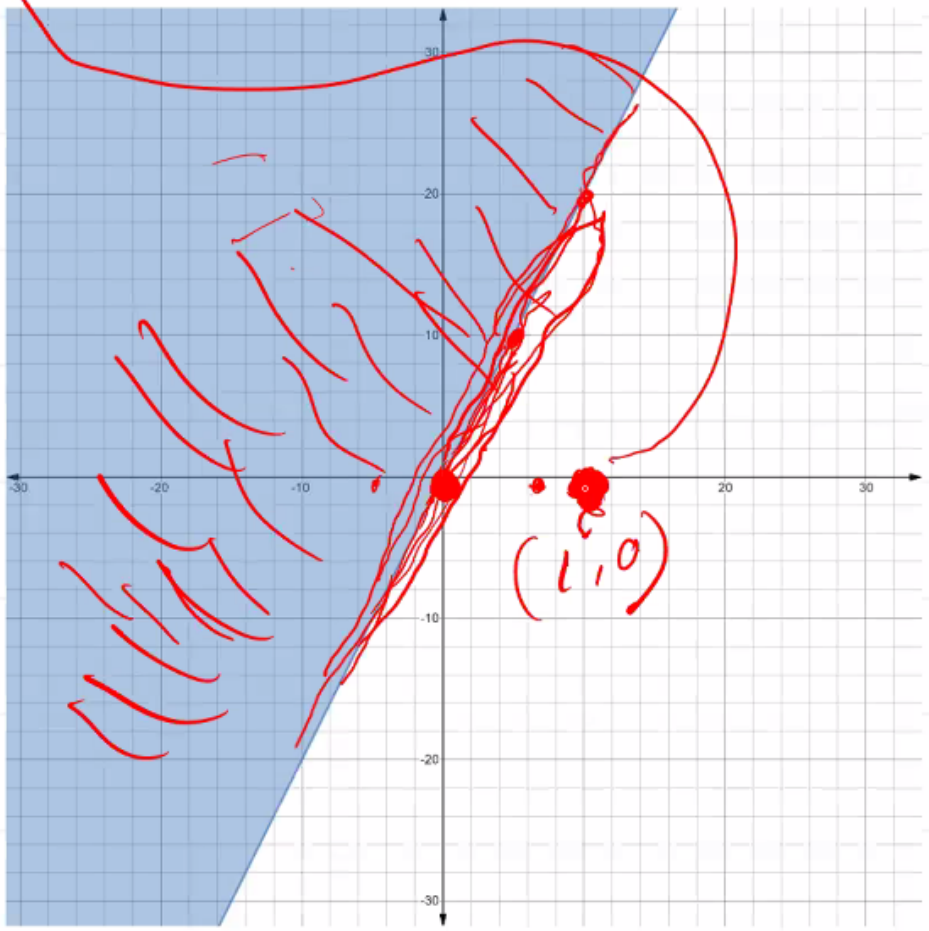
$y = 2x$



$0 \geq 2$

↓

False



$3x - 2y \leq 12$

$3x - 2y \leq 12$

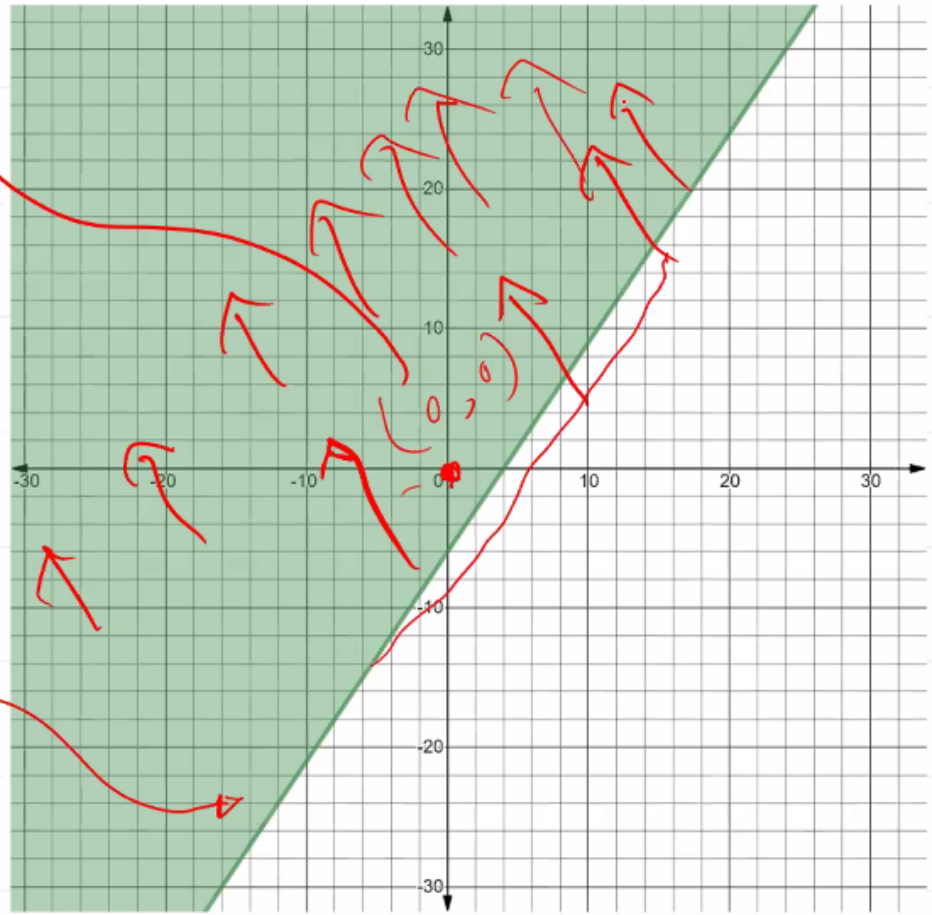
$3x - 2y = 12$

$2y = 3x - 12$

$y = \frac{3x - 12}{2}$

x	0		0	
y		0		0

$0 \leq 12$ ✓



Online Graph

- Desmos: https://www.desmos.com/calculator
- GeoGebra: https://www.geogebra.org/graphing
- GraphSketch: https://graphsketch.com/
- FooPlot: https://fooplot.com/

লেগে থাকো সৎভাবে,
স্বপ্ন জয় তোমারই হবে

ঊদ্ভাস-উন্মেষ শিক্ষা পরিবার

Thank You