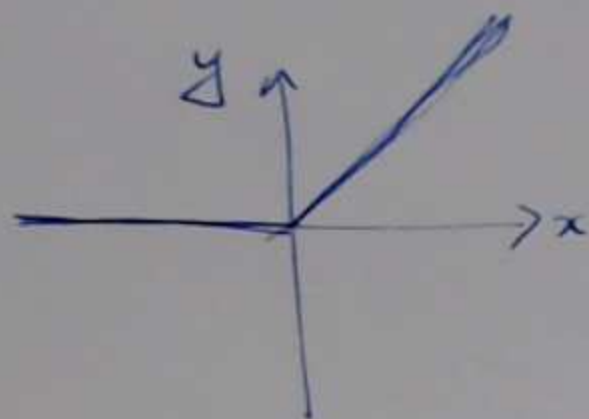


$$f(x) = \begin{cases} x & x \geq 0 \\ 0 & x < 0 \end{cases}$$

if (—)
then

ternary notation.



$f(x) =$ condition ? what to do if : else
true

$$f(x) = \begin{matrix} x \\ 0 \end{matrix} \\ x \geq 0 ? x : 0$$

①

(2)

$$f(x) = |x| = \begin{cases} x & x > 0 \\ -x & x \leq 0 \end{cases}$$

$$f(x) = (\text{condition}) \ ? \ \left(\begin{array}{l} \text{value of} \\ \text{function} \\ \text{when condition} \\ \text{holds} \end{array} \right) \ : \ \left(\begin{array}{l} \text{value} \\ \text{of function} \\ \text{when} \\ \text{condition} \\ \text{doesn't} \\ \text{hold} \end{array} \right)$$

$$f(x) = x > 0 \ ? \ x \ : \ -x$$

(2)

$$f(x) = |x| = \begin{cases} x & x > 0 \\ -x & x \leq 0 \end{cases}$$

$$f(x) = (\text{condition}) \ ? \ \left(\begin{array}{l} \text{value of} \\ \text{function} \\ \text{when condition} \\ \text{holds} \end{array} \right) \ : \ \left(\begin{array}{l} \text{value} \\ \text{of function} \\ \text{when} \\ \text{condition} \\ \text{doesn't} \\ \text{hold} \end{array} \right)$$

$$f(x) = x > 0 \ ? \ x \ : \ -x$$

③

$$f(x) = \begin{cases} 0 & x < 0 \\ x^2 & 0 \leq x \leq 1 \\ 1 & x > 1 \end{cases}$$

$$f(x) = x < 0 ? 0 : (0 \leq x \leq 1) ? x^2 : 1$$

$f(x)$

Out[44]:

In [48]: `g(x) = x < 2 ? x^3 - 2x^2 + 2 : exp(x-1) * sin(x)`

Out[48]: g (generic function with 1 method)

In [49]: `g( exp(1/2) )`

Out[49]: 1.0451254134199743

In [50]: `g(pi/2)`

Out[50]: 0.940982384492798

In [51]: `g(sqrt(5))`

Out[51]: 2.708031888412514

In [52]: `g(sqrt(pi))`

Out[52]: 1.2851426896521208

In [53]: `f(x) = x < 0 ? 0 : x < 1 ? x^2 : 1`

Out[53]: f (generic function with 1 method)

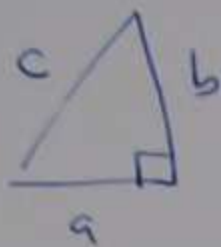
In [54]: `plot(f, -2, 2)`



$$a = 500$$

$$b = 750$$

$$c = 901$$



$$a^2 + b^2 = c^2$$

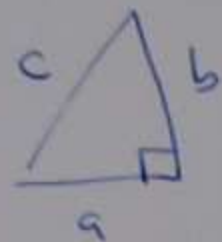
$$a^2 + b^2 - c^2$$

④

④

a)

$$\begin{aligned} a &= 500 \\ b &= 750 \\ c &= 901 \end{aligned}$$



$$a^2 + b^2 = c^2$$

$$a^2 + b^2 - c^2$$

b) $A = 115^\circ$

$$a = 105$$

$$b = 20$$

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$



find B.

$$\frac{\sin 115}{105} = \frac{\sin B}{20}$$

$$\sin(B) = \frac{20 \sin(115)}{105}$$

$$B = \arcsin\left(\frac{20 \sin(115)}{105}\right)$$

5

$$a = 6$$

$$b = 11$$

$$c = 8$$

$$c^2 = a^2 + b^2 - 2ab \cos(c)$$

↑
find.

$$2ab \cos(c) = a^2 + b^2 - c^2$$

$$\cos(c) = \frac{a^2 + b^2 - c^2}{2ab}$$

$$C = \arccos\left(\frac{a^2 + b^2 - c^2}{2ab}\right)$$

⑥

$$\theta_1 = \pi/5$$

$$\theta_2 = \pi/6$$

$$v_1 = 2$$

$$\frac{\sin(\theta_1)}{v_1} = \frac{\sin(\theta_2)}{v_2}$$

$$v_2 \frac{\sin(\theta_1)}{v_1} = \sin(\theta_2)$$

$$v_2 = \frac{v_1 \sin(\theta_2)}{\sin(\theta_1)}$$