

121 strategies

Examples on algebraic expressions & equation

expression

$$2x^2 + 3x - 5$$

$$\frac{3x+1}{x-2}$$

$$\sqrt{x} + 10$$

equation

$$3x + 8 = 10$$

$$2x^2 + 3x - 5 = 1$$

$$\sqrt{x} + 10 = 3$$

Ex on functions

$$f(x) = x^2 + 3x - 5$$

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

$$h(x) = 3e^{-2x+1} - 5$$

Writing w/ equal sign

There should only be one equal sign per line.
Show your wk going downwards.
Example.

$$2(1-x) = 3(1+2x) + 5$$

$$2 - 2x = 3 + 6x + 5$$

$$2 - 2x = 8 + 6x$$

$$-6 = 8x$$

$$-\frac{6}{8} = x$$

$$x = -\frac{3}{4}$$

← space out the wk nicely & make sure you simplify your soln

fn.

Given a fn say $f(x) = x^2 + 3x - 1$

Find $f(3)$, $f(-1)$, $f(ath)$

please write

$$\begin{aligned} f(3) &= 3^2 + 3 \cdot 3 - 1 \\ &= 9 + 9 - 1 \\ &= 17 \end{aligned}$$

$$\begin{aligned} f(-1) &= (-1)^2 + 3(-1) - 1 \\ &= 1 - 3 - 1 \\ &= -3 \end{aligned}$$

$$\begin{aligned} f(ath) &= (ath)^2 + 3(ath) - 1 \\ &= a^2 + 2ah + h^2 + 3a + 3h - 1 \end{aligned}$$

Domain / Range

you can write the Domain & Range using interval notation

ex. $f(x) = \sqrt{x+1}$

$$D: [-1, \infty)$$

$$R: [0, \infty)$$

where the sq bracket means including
parentheses is excluding

Finding certain things

Ex. Given $f(x) = 3x^2 + 5x - 2$

a) Find xy-int.

b) Find $f(-1)$, $f(2)$

a) when finding the xy-int.

y-int
Set $x=0$

$$f(0) = 0 + 0 - 2 \\ = -2$$

$$y\text{-int} = -2$$

y-int $(0, -2)$ } please write it either way.

x-int
Set $f(x) = 0$

$$0 = 3x^2 + 5x - 2 \\ = (3x - 1)(x + 2)$$

$$0 = 3x - 1 \quad x + 2 = 0$$

$$x = \frac{1}{3} \quad x = -2$$

$$x\text{-int} = \frac{1}{3}, -2$$

x-int $(\frac{1}{3}, 0), (-2, 0)$ } please write it either way.

$$b) f(-1) = 3(-1)^2 + 5(-1) - 2 \\ = 3 - 5 - 2 \\ = -4$$

$$f(2) = 3(4) + 5(2) - 2 \\ = 12 + 10 - 2 \\ = 20$$

Notice the equal sign
is lined up.

Graphing.

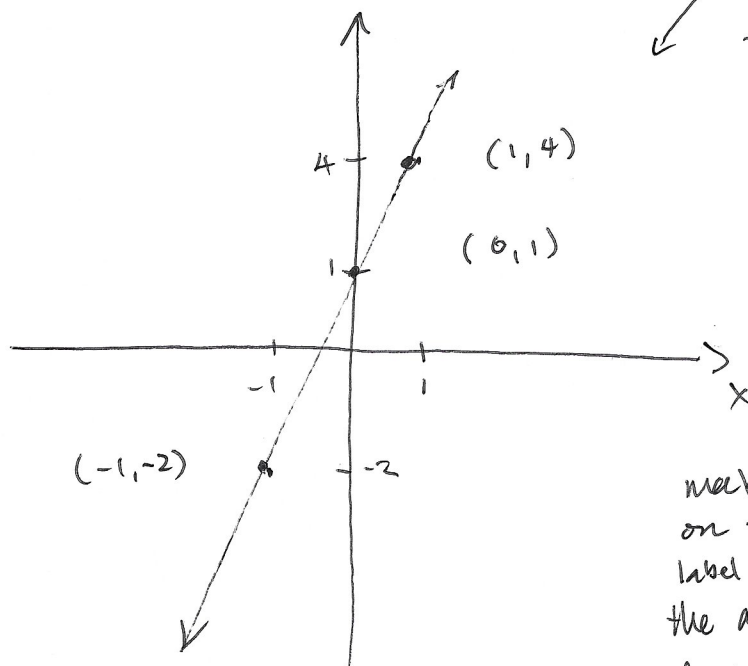
$$f(x) = 3x + 1$$

1) Make a table, this is the easiest way, then you can plug in any # you want.

x	y
1	
0	
-1	

← I normally start w/ $x=0$
 $x=1$
 $x=-1$

x	y
1	4
0	1
-1	-2



Then plot the pts that you found.

make sure on the axis label the #'s on the axis.

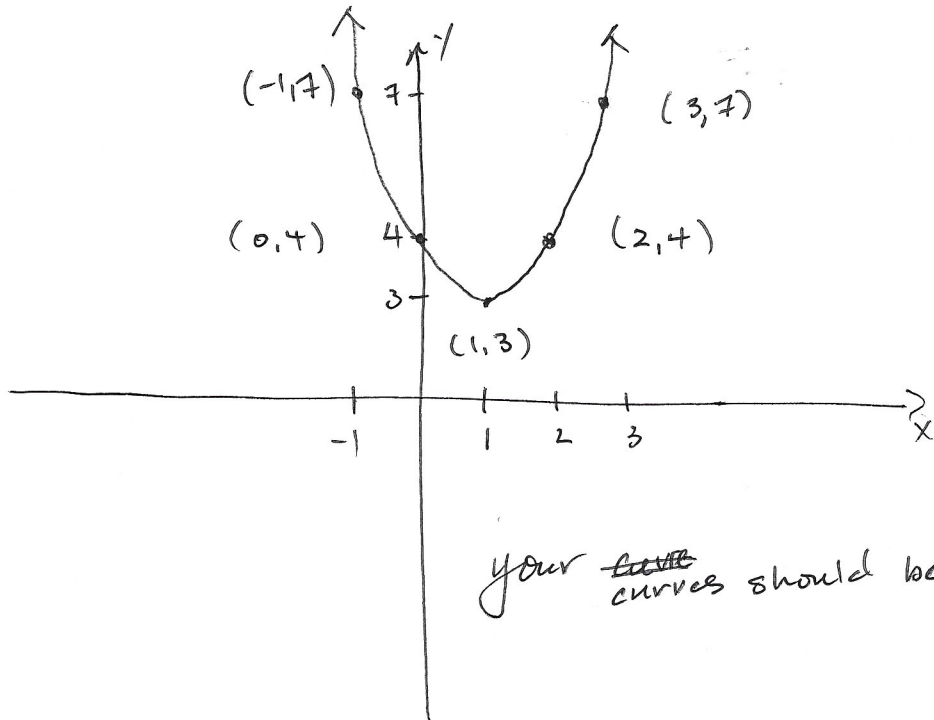
if the instructions say to label the pts, please do so.

More on Graphing

Given $f(x) = (x-1)^2 + 3$ Quadratic fn.

x	y
-1	7
0	4
1	3
2	4
3	7

← this is the vertex of this function
Also this fn is a parabola, concave up
 $x=1$ is the axis of symmetry.



your ~~curve~~ curves should be smooth