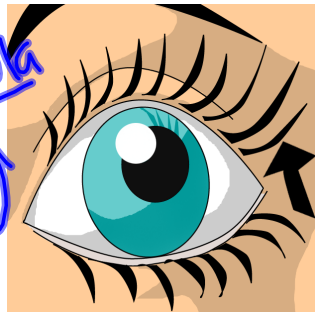
4-4: Graphing a Function Rule

Evaluate each expression for x = -3, x = 0, and x = 2.5

A) $7x - 3$ B) $1 + 4x$ C) $-2x^2$

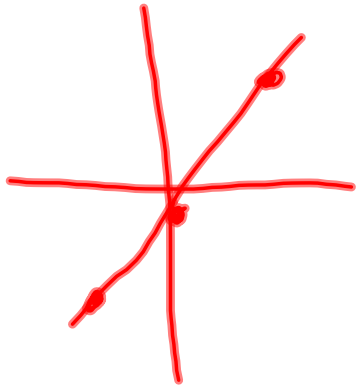


Eye Opener

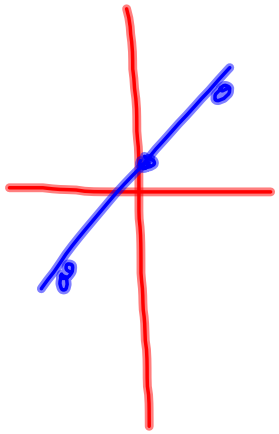
x	y
-3	-24
0	-3
2.5	14.5

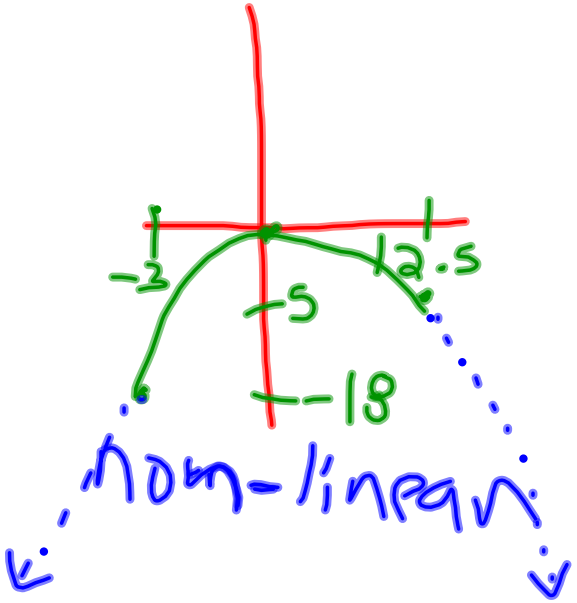
x	y
-3	-11
0	1
2.5	11

x	y
-3	-18
0	0
2.5	-12.5



linear





Essential Understandings

The set of all solutions of an equation forms its graph.

A graph may include solutions that do not appear in a table.

A real-world graph should show only points that make sense in the given situation.

A **continuous graph** is a graph that is unbroken.

A **discrete graph** is composed of distinct isolated points.

Graph each function rule.

$y = 2x + 4$

1 → linear

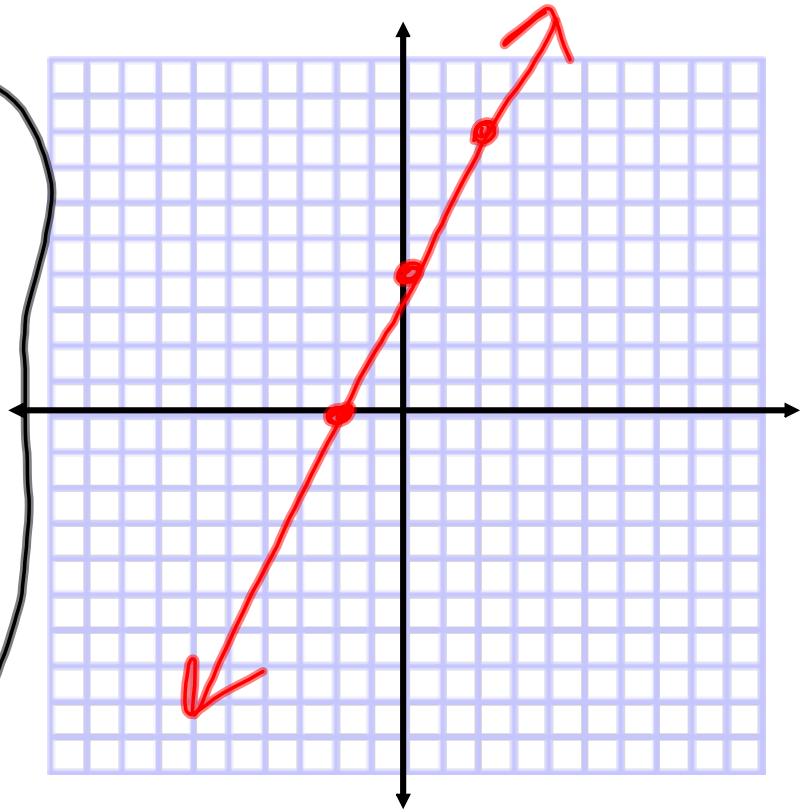
x = R

X	Y
-4	-4
-2	0
0	4
2	8
4	12

+2 +2 +2 +2

+4 +4 +4 +4

y = 2



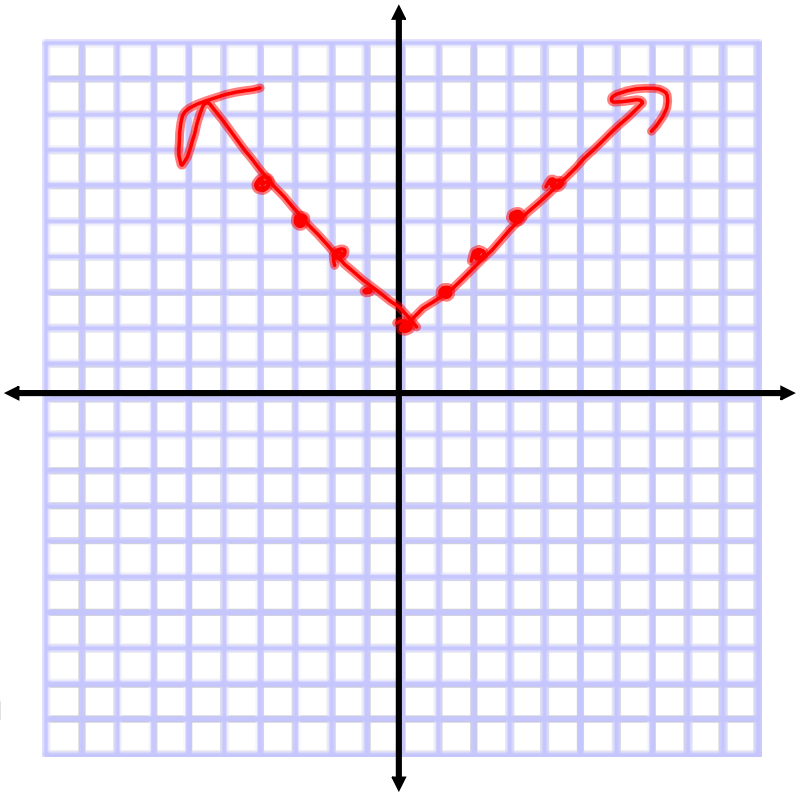
Try to use a variety of values for "x" - positives, negatives, and zero to get a good view of the shape of the graph and any changes it makes in direction.

Can also use your graphing calculator to check your work!

$$y = |x| + 2$$

X	Y
-4	6
-3	5
-2	4
-1	3
0	2
1	3
2	4

+1 +1 +1 -1 -1 -1 +1 +1



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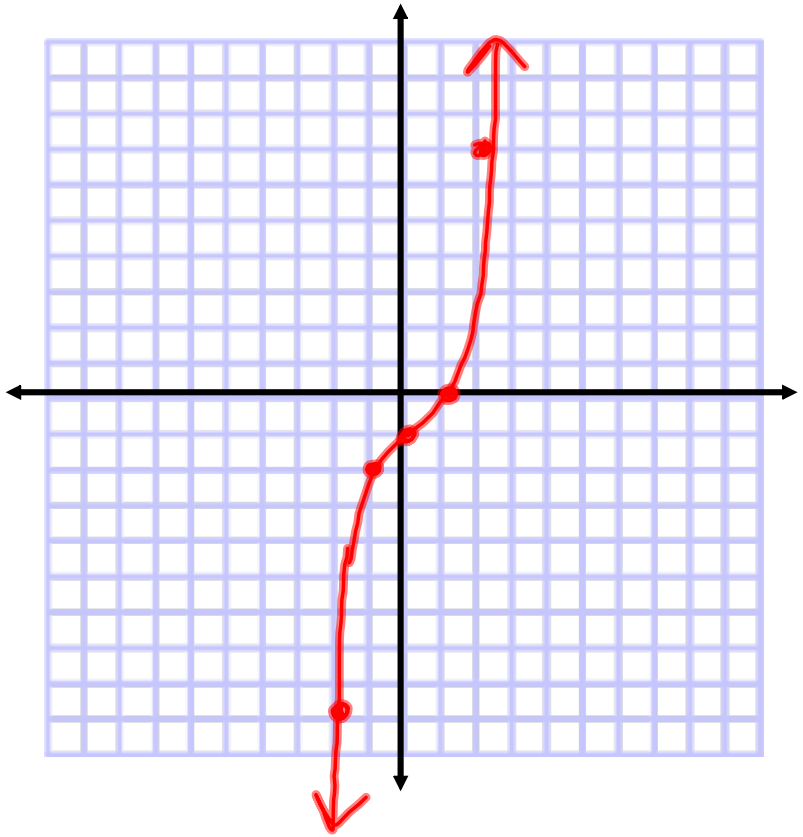
vertex = (0, 2)

$$y = x^3 - 1$$

X	Y	
-2	-9	+7
-1	-2	+1
0	-1	+1
1	0	+7
2	7	+19
3	26	

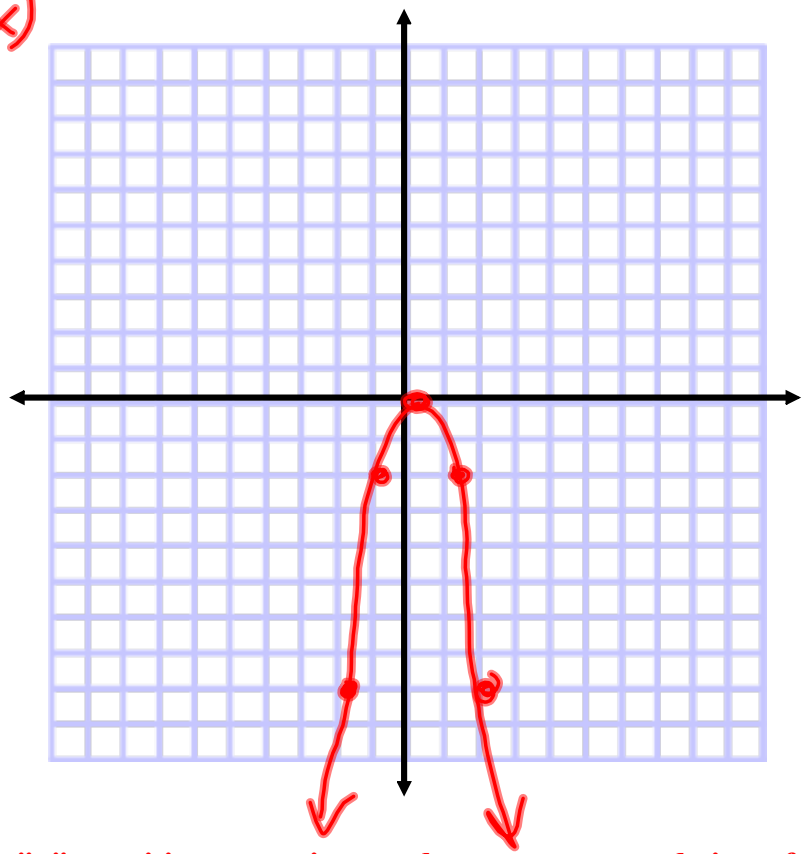


Try to use a variety of values for "x" - positives, negatives, and zero to get a good view of the shape of the graph and any changes it makes in direction.

Can also use your graphing calculator to check your work!

$y = -2x^2 \neq (-2x)^2$

X	Y
-3	-18
-2	-8
-1	-2
0	0
1	-2
2	-8
3	-18



Try to use a variety of values for "x" - positives, negatives, and zero to get a good view of the shape of the graph and any changes it makes in direction.

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vetex = (0, 0)

parabola ∩

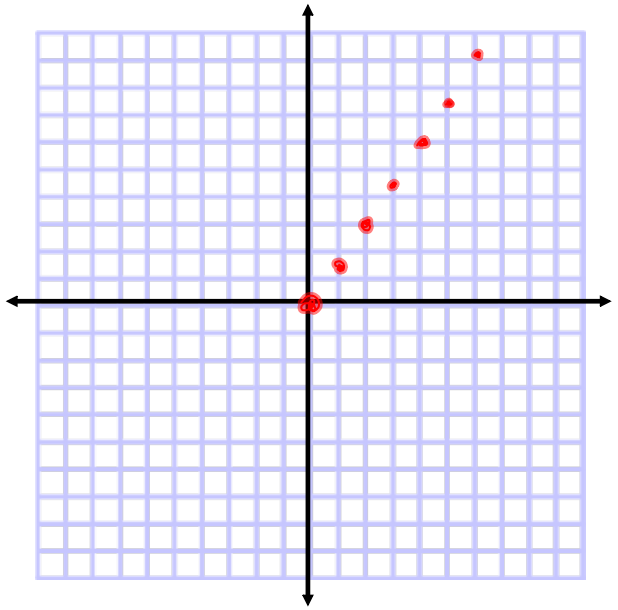
Sporting Goods The amount a basketball coach spends at a sporting goods store depends on the number of basketballs the coach buys. The situation is represented by the function rule $a = 15b$.

a. Make a table of values and graph the function rule. Is the graph *continuous* or *discrete*? Explain. Can't have fractional b-balls

b. Suppose the coach spent $120 before tax. How many basketballs did she buy?

B	A
0	0
1	15
2	30
3	45
4	60
5	75
6	90

Remember to use realistic values!



$y = 15x$

$\frac{120}{15} = \frac{15x}{15}$

$x = 8$