Sorting Functions

T1

On the next page are four graphs, four equations, four tables, and four rules.

Your task is to match each graph with an equation, a table and a rule.

1. Write your answers in the following table.

Graph	Equation	Table	Rule
A	C ✓	B ✓	A ✓
B	D ✓	A ✓	C ✓
C	B ✓	C ✓	D ✓
D	A ✓	D ✓	B ✓

6

2. Explain how you matched each of the four graphs to its equation.

Graph A Graph A isn't a linear equation since it isn't a straight line, so there must be a squared in the equation. I took (2,4) and found the relationship between the x & y → $y=x^2$. ✓ 1

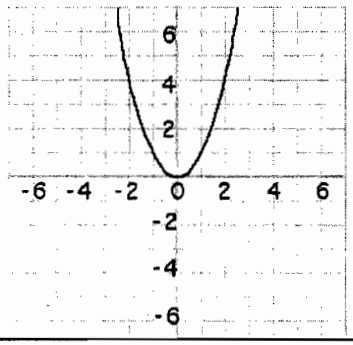
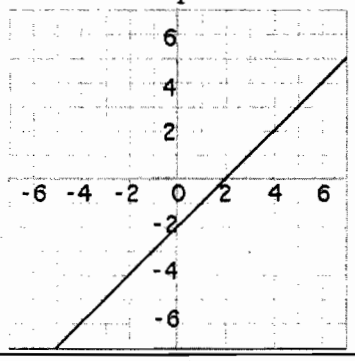
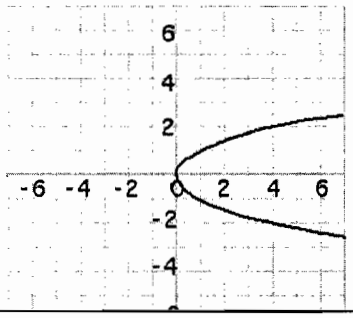
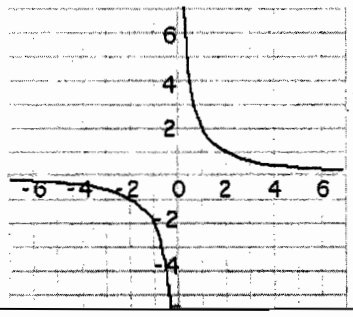
Graph B Graph B, a straight line, is a linear equation. $y=x-2$ is the only linear equation in the choices. ✓ 1

Graph C Graph C is sideways, so it fits equation B. ✓ $y^2=x$ 1
is the same as $y=\sqrt{x}$. Since x can't be a negative # (there's no $\sqrt{}$ of a negative number), the maximum x point is 0, as shown in the graph.

Graph D Graph D has 2 separate lines which fits equation A, since the negatives will stay in the all negative quadrant and the positives will stay in the all positive quadrant. ✓ 1

10

T1

Graph A	Equation A	Table A	Rule A
	$xy = 2$	x: -2, -1, 0, 1, 2, 3 y: -4, -3, -2, -1, 0, 1	y is the same as x multiplied by x
Graph B	**Equation B**	**Table B**	**Rule B**
	$y^2 = x$	x: -2, -1, 0, 1, 2, 3 y: 4, 1, 0, 1, 4, 9	x multiplied by y is equal to 2
Graph C	**Equation C**	**Table C**	**Rule C**
	$y = x^2$	x: 0, 1, 4, 9, 16 y: 0, ±1, ±2, ±3, ±4	y is 2 less than x
Graph D	**Equation D**	**Table D**	**Rule D**
	$y = x - 2$	x: -2, -1, 0, 1, 2, 4 y: -1, -2, ±∞, 2, 1, 0.5	x is the same as y multiplied by y

Sorting Functions

T2

On the next page are four graphs, four equations, four tables, and four rules.

Your task is to match each graph with an equation, a table and a rule.

1. Write your answers in the following table.

Graph	Equation	Table	Rule
A	C ✓	B ✓	A ✓
B	D ✓	A ✓	C ✓
C	B ✓	C ✓	D ✓
D	A ✓	D ✓	B ✓

6

2. Explain how you matched each of the four graphs to its equation.

Graph A This graph showed that for each y-value, there were 2 x-values. The equation was C because you could put a +/- number of x, but the y-value would be the same ✓ 1

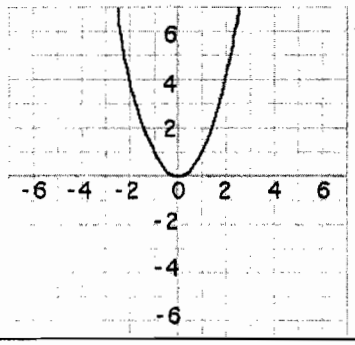
Graph B This graph was linear, so there was only one possible solution whatever number you plug in. The y-intercept was -2. Equation matched the requirements. ✓ 1

Graph C This graph showed that for each x-value, there could be two y-values. The equation was B since, like equation C, it is quadratic, matching the quadratic graph ✓ 1

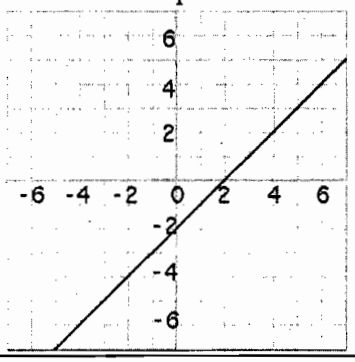
Graph D This graph was equation A, since A was the only one left. ✓ 1

10

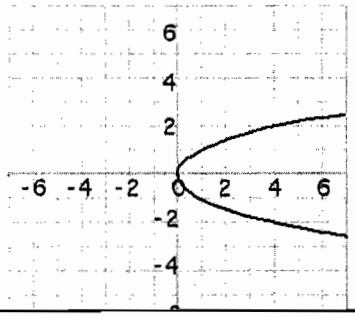
T2

Graph A	Equation A	Table A	Rule A
	$xy = 2$		y is the same as x multiplied by x

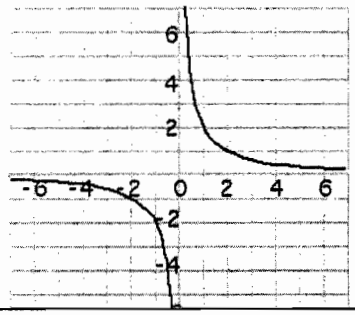
x	-2	-1	0	1	2	3
y	-4	-3	-2	-1	0	1

Graph B	Equation B	Table B	Rule B
	$y^2 = x$		x multiplied by y is equal to 2

x	-2	-1	0	1	2	3
y	4	1	0	1	4	9

Graph C	Equation C	Table C	Rule C
	$y = x^2$		y is 2 less than x

x	0	1	4	9	16
y	0	±1	±2	±3	±4

Graph D	Equation D	Table D	Rule D
	$y = x - 2$		x is the same as y multiplied by y

x	-2	-1	0	1	2	4
y	-1	-2	±∞	2	1	0.5

Sorting Functions T3

On the next page are four graphs, four equations, four tables, and four rules.

Your task is to match each graph with an equation, a table and a rule.

1. Write your answers in the following table.

Graph	Equation	Table	Rule
A	C ✓	B ✓	A ✓
B	D ✓	A ✓	C ✓
C	B ✓	C ✓	D ✓
D	A ✓	D ✓	B ✓

6

2. Explain how you matched each of the four graphs to its equation.

Graph A I know that it matches the equation because $y=x^2$ means the y can't be negative. Also multiplying x^2, there can be 2 possible answers a negative and positive. ✓ 1

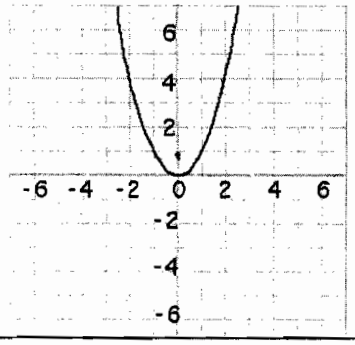
Graph B I know in the equation of $y=x-2$, the -2 represents the y-intercept. And in the graph the line intersects -2 at the y axis ✓ 1

Graph C This graph is like graph A but sideways so I knew the equations would flipped $(y=x^2) \rightarrow (y^2=x)$ ✓ 1

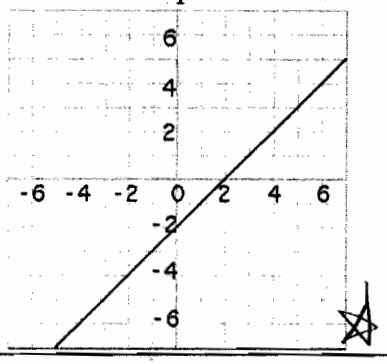
Graph D I know because if I make the x or y=0 in the equation xy=2, it won't be possible and Graph D is the only one that shows that. ✓ 1

10

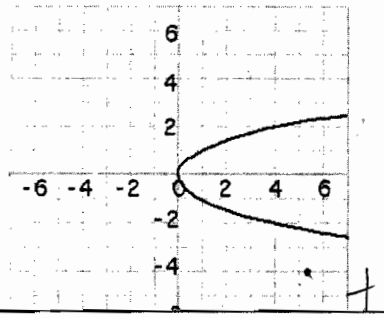
T3

Graph A	Equation A	Table A	Rule A
	$xy = 2$		y is the same as x multiplied by x

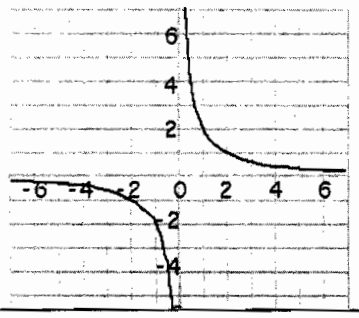
x	-2	-1	0	1	2	3
y	-4	-3	-2	-1	0	1

Graph B	Equation B	Table B	Rule B
	$y^2 = x$		x multiplied by y is equal to 2

x	-2	-1	0	1	2	3
y	4	1	0	1	4	9

Graph C	Equation C	Table C	Rule C
	$y = x^2$		y is 2 less than x

x	0	1	4	9	16
y	0	±1	±2	±3	±4

Graph D	Equation D	Table D	Rule D
	$y = x - 2$		x is the same as y multiplied by y

x	-2	-1	0	1	2	4
y	-1	-2	±∞	2	1	0.5

Sorting Functions

T4

On the next page are four graphs, four equations, four tables, and four rules.

Your task is to match each graph with an equation, a table and a rule.

1. Write your answers in the following table.

Graph	Equation	Table	Rule
A	C ✓	B ✓	A ✓
B	D ✓	A ✓	C ✓
C	B ✓	C ✓	D ✓
D	A ✓	D ✓	B ✓

6

2. Explain how you matched each of the four graphs to its equation.

Graph A I found (2, 4) on the graph and since $4 = 2^2$, the equation is $y = x^2$ ✓ 1

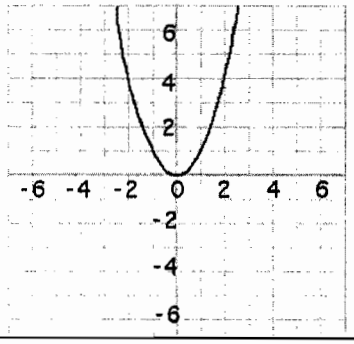
Graph B I found (-2, -4) on the graph and since $-4 = -2 - 2$, the equation is $y = x - 2$ ✓ 1

Graph C I found (4, 2) and (4, -2) and since $4 = 2^2$ or $(-2)^2$, the equation is $y^2 = x$ ✓ 1

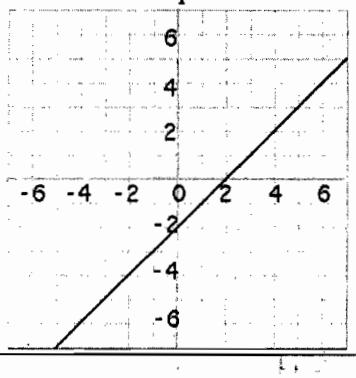
Graph D ∧ 0

9

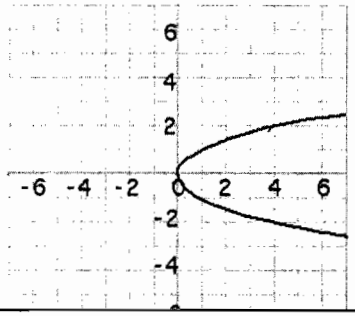
T4

Graph A	Equation A ✓	Table A ✓	Rule A ✓
	$xy = 2$		*y* is the same as *x* multiplied by *x*

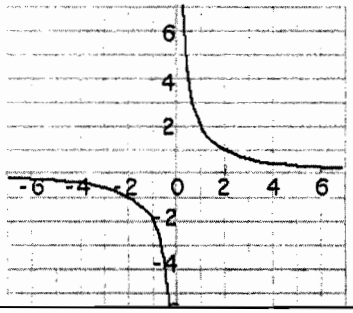
x	-2	-1	0	1	2	3
y	-4	-3	-2	-1	0	1

Graph B	Equation B ✓	Table B ✓	Rule B ✓
	$y^2 = x$		*x* multiplied by *y* is equal to 2

x	-2	-1	0	1	2	3
y	4	1	0	1	4	9

Graph C	Equation C ✓	Table C ✓	Rule C ✓
	$y = x^2$		*y* is 2 less than *x*

x	0	1	4	9	16
y	0	±1	±2	±3	±4

Graph D	Equation D ✓	Table D ✓	Rule D ✓
	$y = x - 2$		*x* is the same as *y* multiplied by *y*

x	-2	-1	0	1	2	4
y	-1	-2	±∞	2	1	0.5

Sorting Functions

T5

On the next page are four graphs, four equations, four tables, and four rules.

Your task is to match each graph with an equation, a table and a rule.

1. Write your answers in the following table.

Graph	Equation	Table	Rule
A	C ✓	B ✓	A ✓
B	D ✓	A ✓	C ✓
C	B ✓	C ✓	D ✓
D	A ✓	D ✓	B ✓

6

2. Explain how you matched each of the four graphs to its equation.

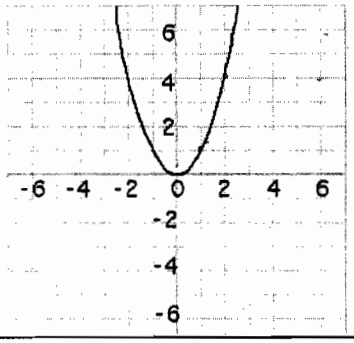
Graph A I already knew this graph to be $y=x^2$, from my algebra class, but just to be certain I plugged some points on the line into $y=x^2$. $(2,4) \rightarrow 4=2^2 \rightarrow 4=4$ ✓ $(-1,1) \rightarrow 1=(-1)^2 \rightarrow 1=1$ ✓ These points worked, so I wrote down equation C ✓ 1

Graph B this graph was a linear equation, with a slope of 1 and a y-intercept of -2, so, using the standard equation $y=mx+b \rightarrow y=x-2$, I found the equation for the graph. this equation matched equation D, so I wrote D down. ✓ 1

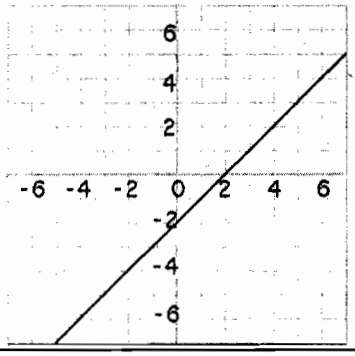
Graph C I figured the equation for this graph would be somewhat reverse of the equation for Graph A, since the shape was like that of a quadratic, but rotated 90°. $y^2=x$ seemed to fit that, and I also plugged some points on Graph C into $y^2=x$. $(4,-2) \rightarrow (-2)^2=4 \rightarrow 4=4$ ✓ $(1,1) \rightarrow 1^2=1 \rightarrow 1=1$ ✓ The points worked, so I wrote equation B down. 1

Graph D Even though I was unfamiliar with the shape of Graph D, equation A was the only equation left to match with a graph, so therefore Graph D and equation A must go together. I also plugged in points from graph D into $xy=2$ $(2,1) \rightarrow 2(1)=2 \rightarrow 2=2$ ✓ $(-1,-2) \rightarrow (-1)(-2)=2 \rightarrow 2=2$ ✓ These points worked, so I wrote equation A down. 1 ✓

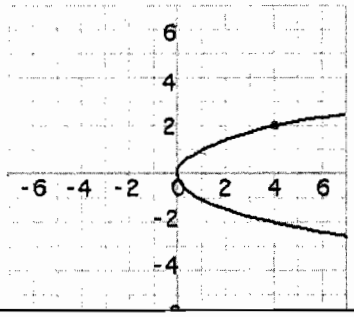
10

Graph A	Equation A	Table A	Rule A
	$xy = 2$		y is the same as x multiplied by x

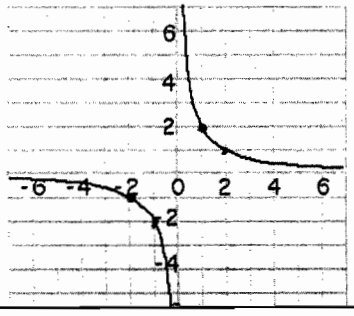
x	-2	-1	0	1	2	3
y	-4	-3	-2	-1	0	1

Graph B	Equation B	Table B	Rule B
	$y^2 = x$		x multiplied by y is equal to 2

x	-2	-1	0	1	2	3
y	4	1	0	1	4	9

Graph C	Equation C	Table C	Rule C
	$y = x^2$		y is 2 less than x

x	0	1	4	9	16
y	0	±1	±2	±3	±4

Graph D	Equation D	Table D	Rule D
	$y = x - 2$		x is the same as y multiplied by y

x	-2	-1	0	1	2	4
y	-1	-2	±∞	2	1	0.5