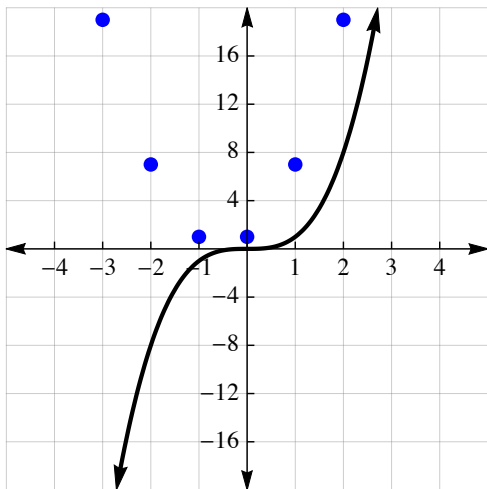


More Finite Difference Graphs

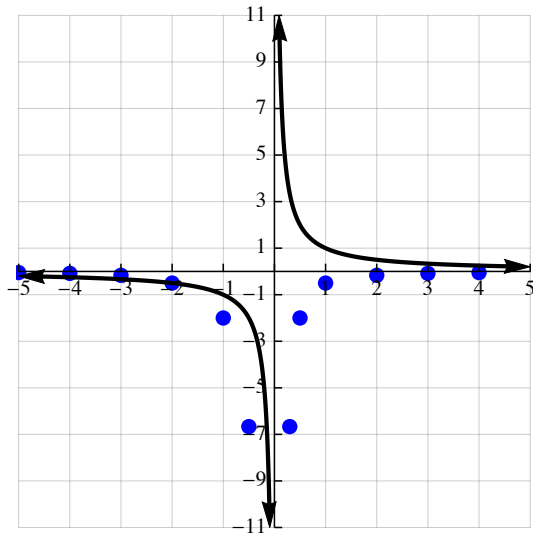
The Finite Difference Graph for $f(x) = x^3$

x	-4	-3	-2	-1	0	1	2	3	4	5
$f(x)$	-64	-27	-8	-1	0	1	8	27	64	125
Δy	37	19	7	1	1	7	19	37	61	
$\Delta(\Delta y)$	-18	-12	-6	0	6	12	18	24		



The Finite Difference Graph for $f(x) = 1/x$

x	-5	-4	-3	-2	-1	$-\frac{1}{2}$	$-\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{2}$	1	2	3	4	5
$f(x)$	$-\frac{1}{5}$	$-\frac{1}{4}$	$-\frac{1}{3}$	$-\frac{1}{2}$	-1	-2	-3	3	2	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$
Δy	$-\frac{1}{20}$	$-\frac{1}{12}$	$-\frac{1}{6}$	$-\frac{1}{2}$	-1	-1		-1	-1	$-\frac{1}{2}$	$-\frac{1}{6}$	$-\frac{1}{12}$	$-\frac{1}{20}$	



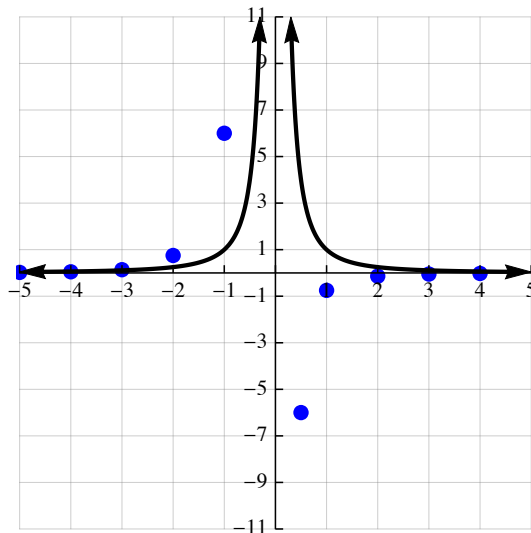
The Finite Difference Graph for $f(x) = 1/x^2$

x	-5	-4	-3	-2	-1	$-\frac{1}{2}$	$-\frac{1}{3}$
$f(x)$	$\frac{1}{25}$	$\frac{1}{16}$	$\frac{1}{9}$	$\frac{1}{4}$	1	4	9

$\frac{1}{3}$	$\frac{1}{2}$	1	2	3	4	5
9	4	1	$\frac{1}{4}$	$\frac{1}{9}$	$\frac{1}{16}$	$\frac{1}{25}$

Δy	$\frac{9}{400}$	$\frac{7}{144}$	$\frac{5}{36}$	$\frac{3}{4}$	3	5
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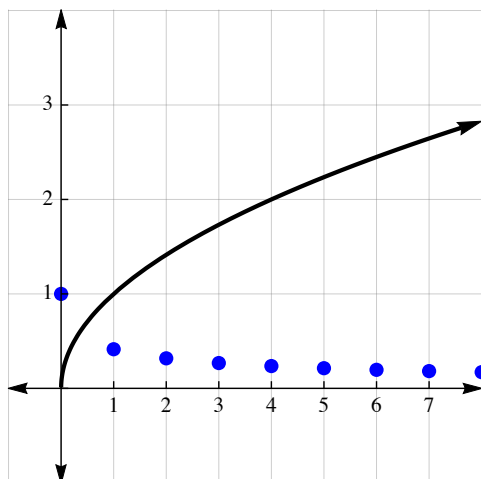
-5	-3	$-\frac{3}{4}$	$-\frac{5}{36}$	$-\frac{7}{144}$	$-\frac{9}{400}$
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The Finite Difference Graph for $f(x) = \sqrt{x}$

x	0	1	2	3	4	5	6	7
$f(x)$	0	1	$\sqrt{2}$	$\sqrt{3}$	2	$\sqrt{5}$	$\sqrt{6}$	$\sqrt{7}$

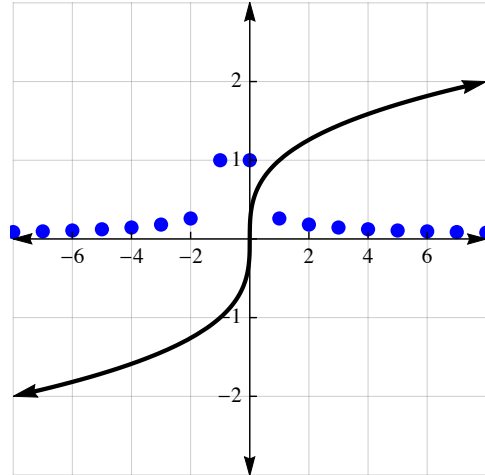
Δy	1.0	0.41	0.32	0.27	0.24	0.21	0.20
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The Finite Difference Graph for $f(x) = x^{1/3}$

x	-5	-4	-3	-2	-1	0	1	2	3	4	5
$f(x)$	$-\sqrt[3]{5}$	$-2^{2/3}$	$-\sqrt[3]{3}$	$-\sqrt[3]{2}$	-1	0	1	$\sqrt[3]{2}$	$\sqrt[3]{3}$	$2^{2/3}$	$\sqrt[3]{5}$

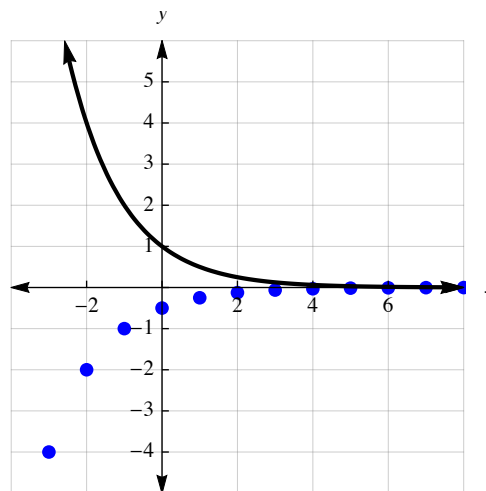
Δy	0.12	0.15	0.18	0.26	1.0	1.0	0.26	0.18	0.15	0.12
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The Finite Difference Graph for $f(x) = 0.5^x$

x	-3	-2	-1	0	1	2	3	4	5	6
$f(x)$	8.	4.	2.	1.	0.5	0.25	0.13	0.063	0.031	0.016

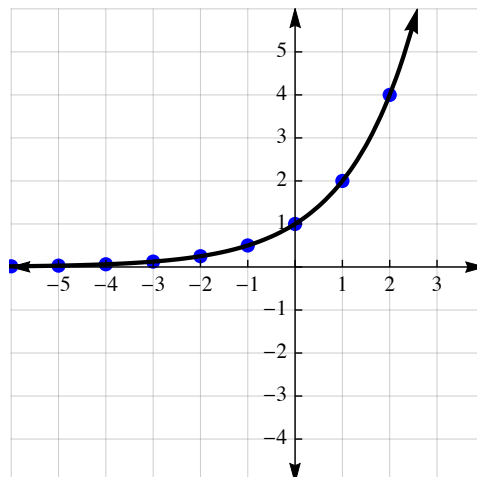
Δy	-4.	-2.	-1.	-0.5	-0.25	-0.13	-0.063	-0.031	-0.016
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The Finite Difference Graph for $f(x) = 2^x$

x	-3	-2	-1	0	1	2	3	4	5	6
$f(x)$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	1	2	4	8	16	32	64

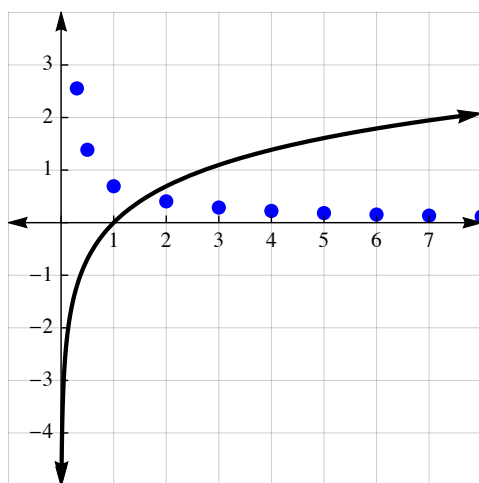
Δy	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	1	2	4	8	16	32
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The Finite Difference Graph for $f(x) = \log(x)$

x	0	1	2	3	4	5	6	7
$f(x)$	$-\infty$	0	0.693	1.10	1.39	1.61	1.79	1.95

Δy	∞	0.69	0.41	0.29	0.22	0.18	0.15
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x	-5	-4	-3	-2	-1	0	1	2	3	4	5
$f(x)$	0.96	0.76	-0.14	-0.91	-0.84	0	0.84	0.91	0.14	-0.76	-0.96

Δy	-0.20	-0.90	-0.77	0.068	0.84	0.84	0.068	-0.77	-0.90	-0.20
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The Finite Difference Graph for $f(x) = \sin(x)$

x	-5	-4	-3	-2	-1	0	1	2	3	4	5
$f(x)$	0.96	0.76	-0.14	-0.91	-0.84	0	0.84	0.91	0.14	-0.76	-0.96

Δy	-0.20	-0.90	-0.77	0.068	0.84	0.84	0.068	-0.77	-0.90	-0.20
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