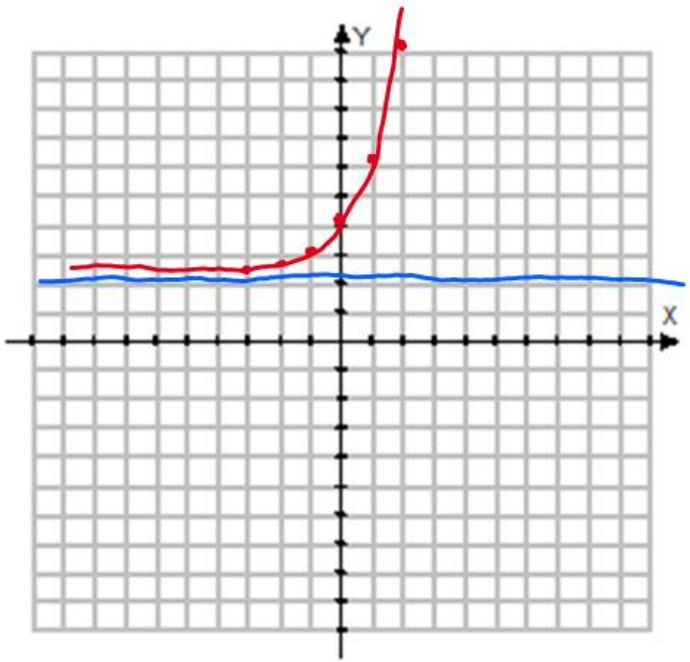
7. $y = 2^{x+1} + 2$ Growth or Decay?

Yint: (0, 4) Asymp: $y = 2$ D: $(-\infty, \infty)$ R: $(2, \infty)$

EB: $x \to +\infty, f(x) \to \infty$

$x \to -\infty, f(x) \to 2$



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Warm Up

x	y
0	4
1	6
2	10
3	18
4	34

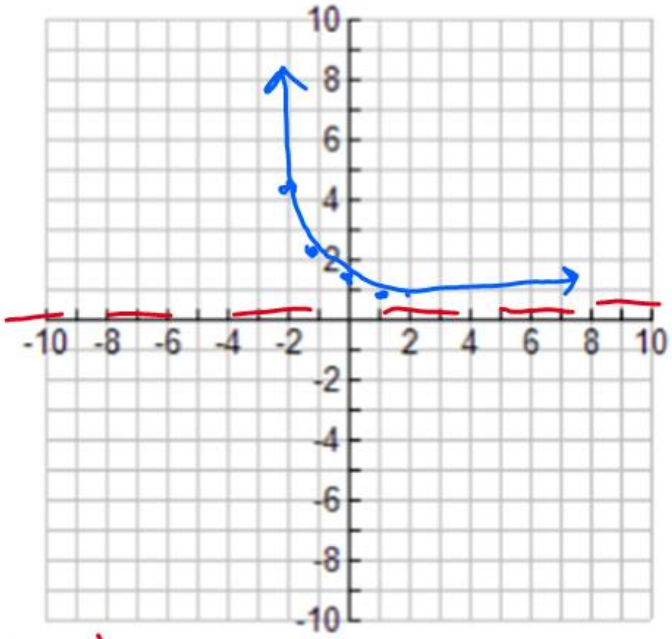
-3 2.25

-2 2.5

-1 3

$f(x) = \left(\frac{1}{2}\right)^x$

x	f(x)
-2	4
-1	2
0	1
1	1/2
2	1/4



y-intercept (0, 1) asymptote y = 0

domain $(-\infty, \infty)$ range $(0, \infty)$

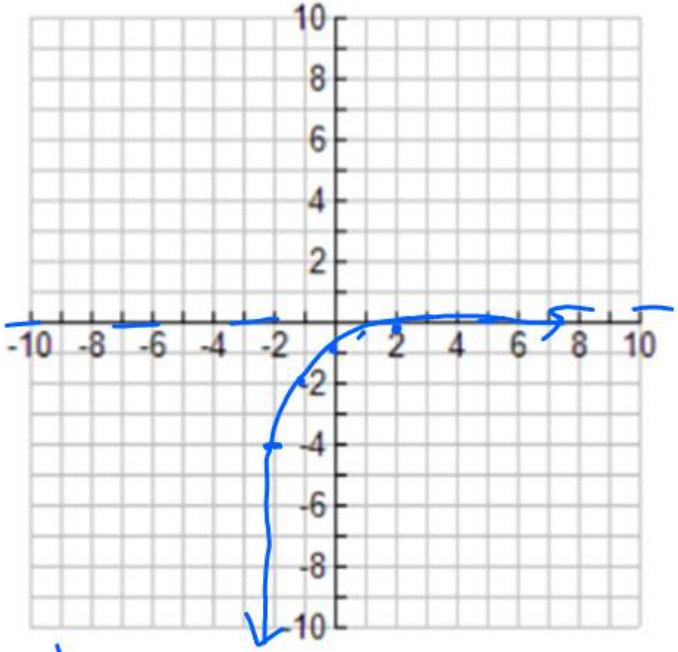
end behavior: as $x \to +\infty$, $f(x) \to$ 0,

and

as $x \to -\infty$, $f(x) \to$ ∞

2. $f(x) = -\left(\frac{1}{2}\right)^x$

x	f(x)
-2	-4
-1	-2
0	-1
1	-1/2
2	-1/4



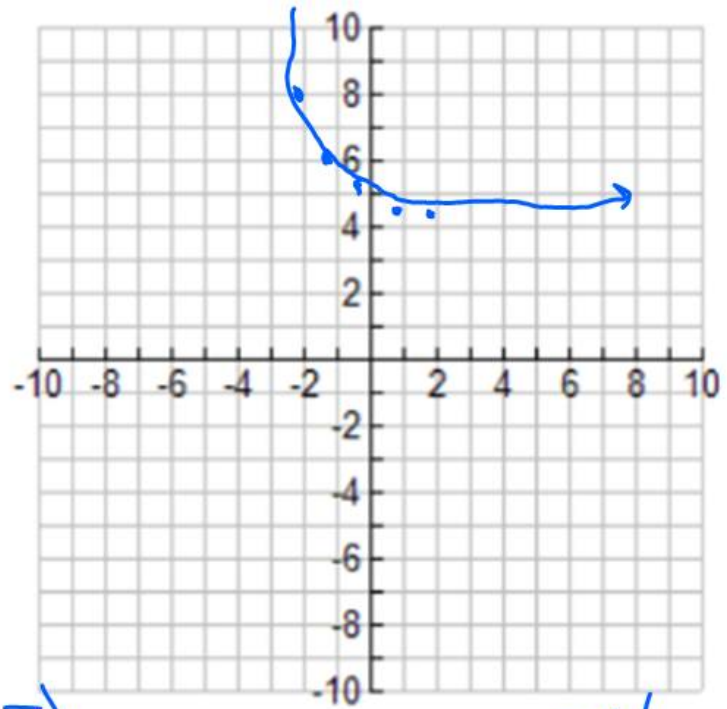
y-intercept (0, -1) asymptote y = 0

domain $(-\infty, \infty)$ range $(-\infty, 0)$

end behavior: as $x \to +\infty$, $f(x) \to$ 0, and

as $x \to -\infty$, $f(x) \to$ $-\infty$

3. $f(x) = (\frac{1}{2})^x + 4$



x	f(x)
-2	8
-1	6
0	5
1	4.5
2	4.25

y-intercept (0, 5) asymptote $y = 4$

domain $(-\infty, \infty)$ range $(4, \infty)$

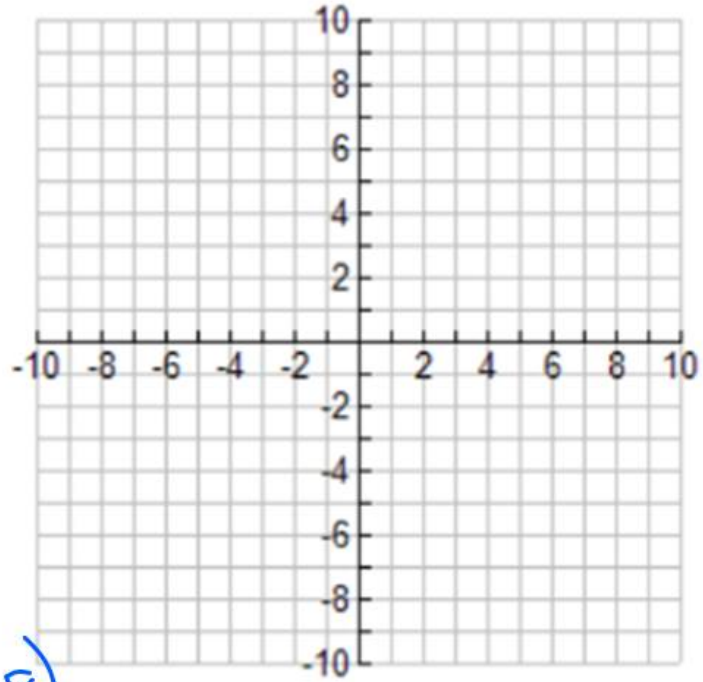
end behavior: as $x \to +\infty$, $f(x) \to$ 4,

and

as $x \to -\infty$, $f(x) \to$ ∞

4. $f(x) = \left(\frac{1}{2}\right)^{x-3}$

x	f(x)
1	4
2	2
3	1
4	1/2
5	1/4



y-intercept (0, 8) asymptote _____

domain _____ range _____

end behavior: as $x \to +\infty$, $f(x) \to$ _____, and

as $x \to -\infty$, $f(x) \to$ _____