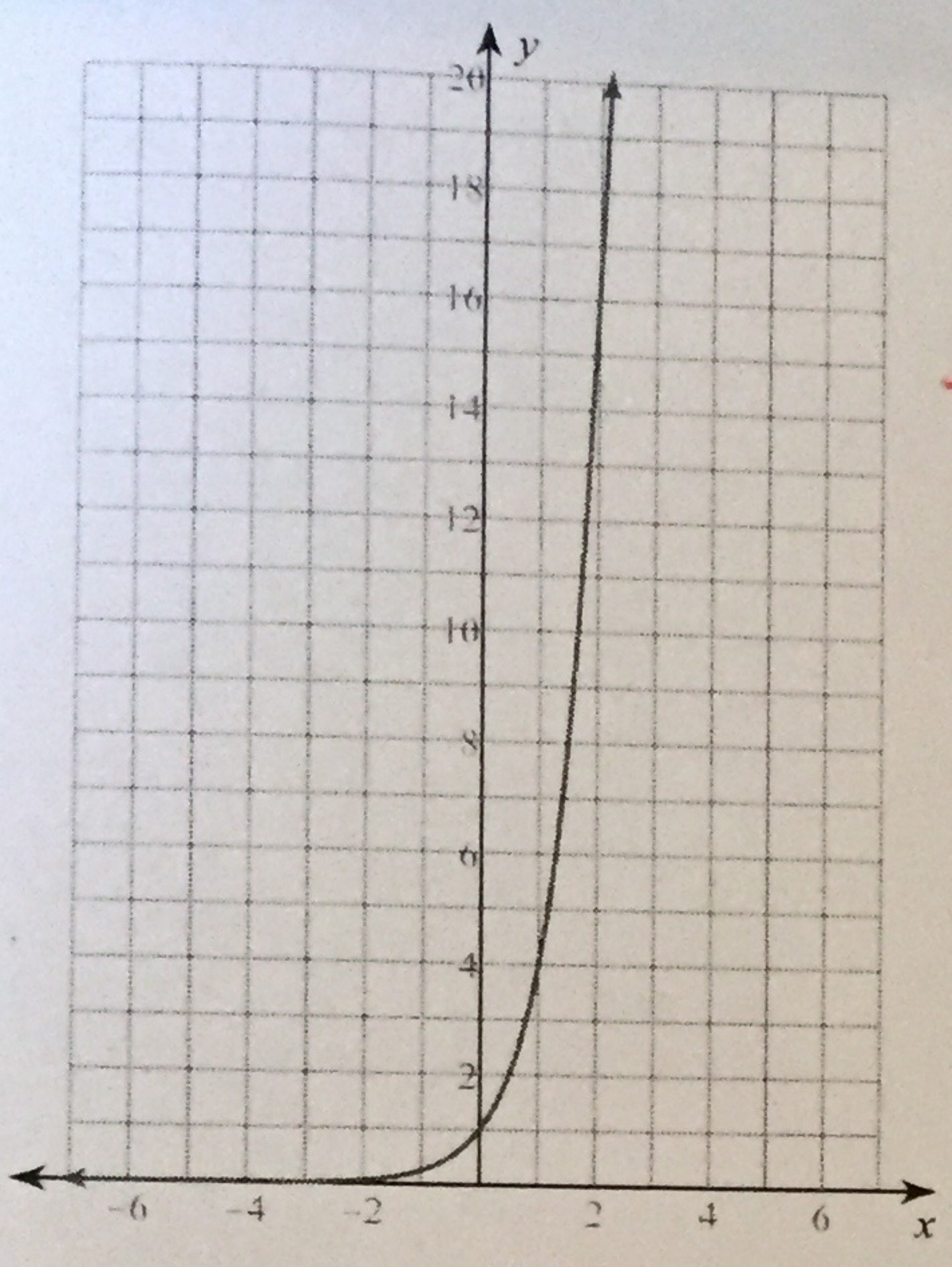


Section 12.2--Graphing Exponential Functions

Sketch the graph of each function. Describe the transformations from the parent function $y = ab^x$.

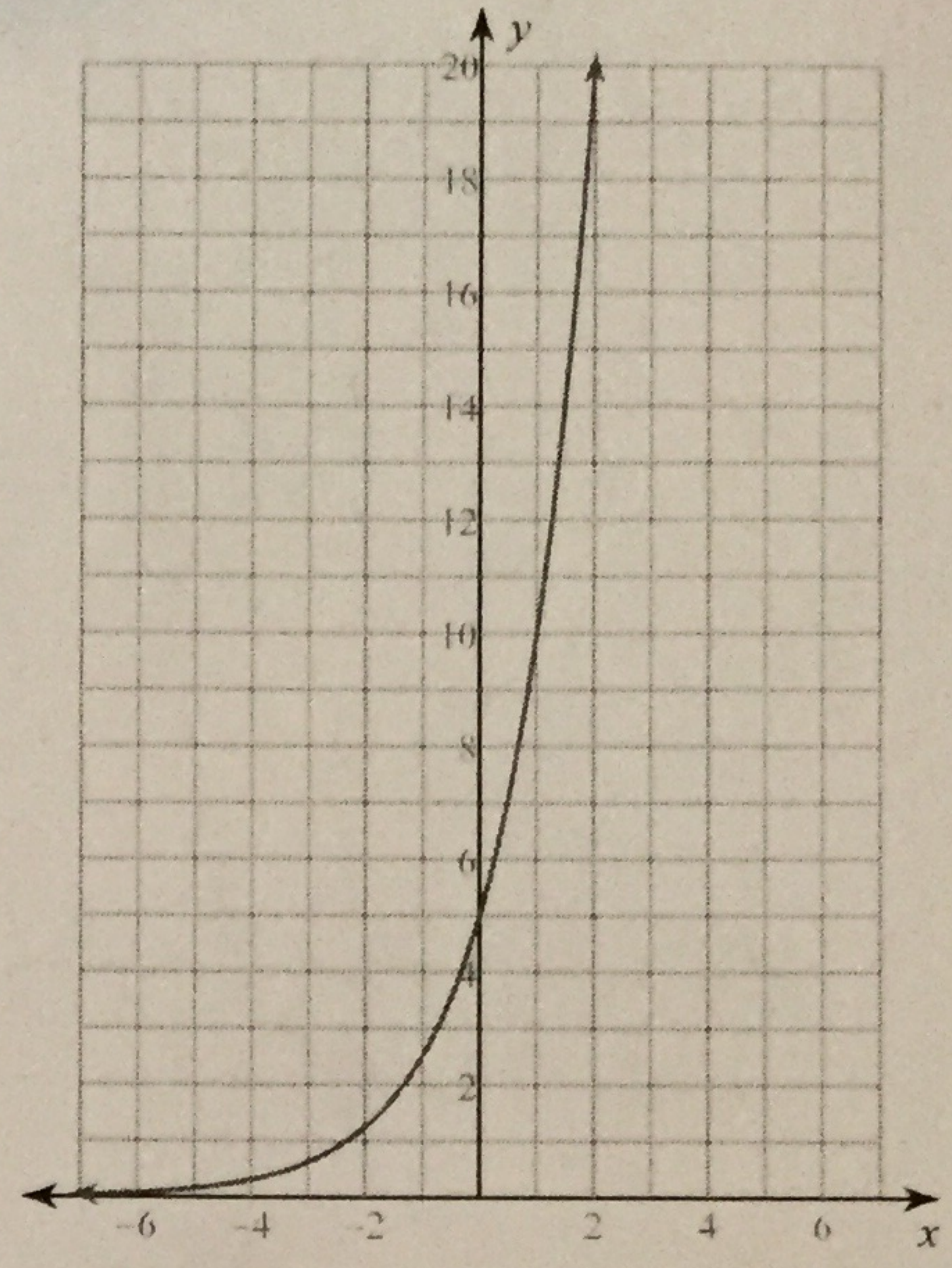
1) $y = 4^x$



growth

x	y
-1	.25
0	1
1	4

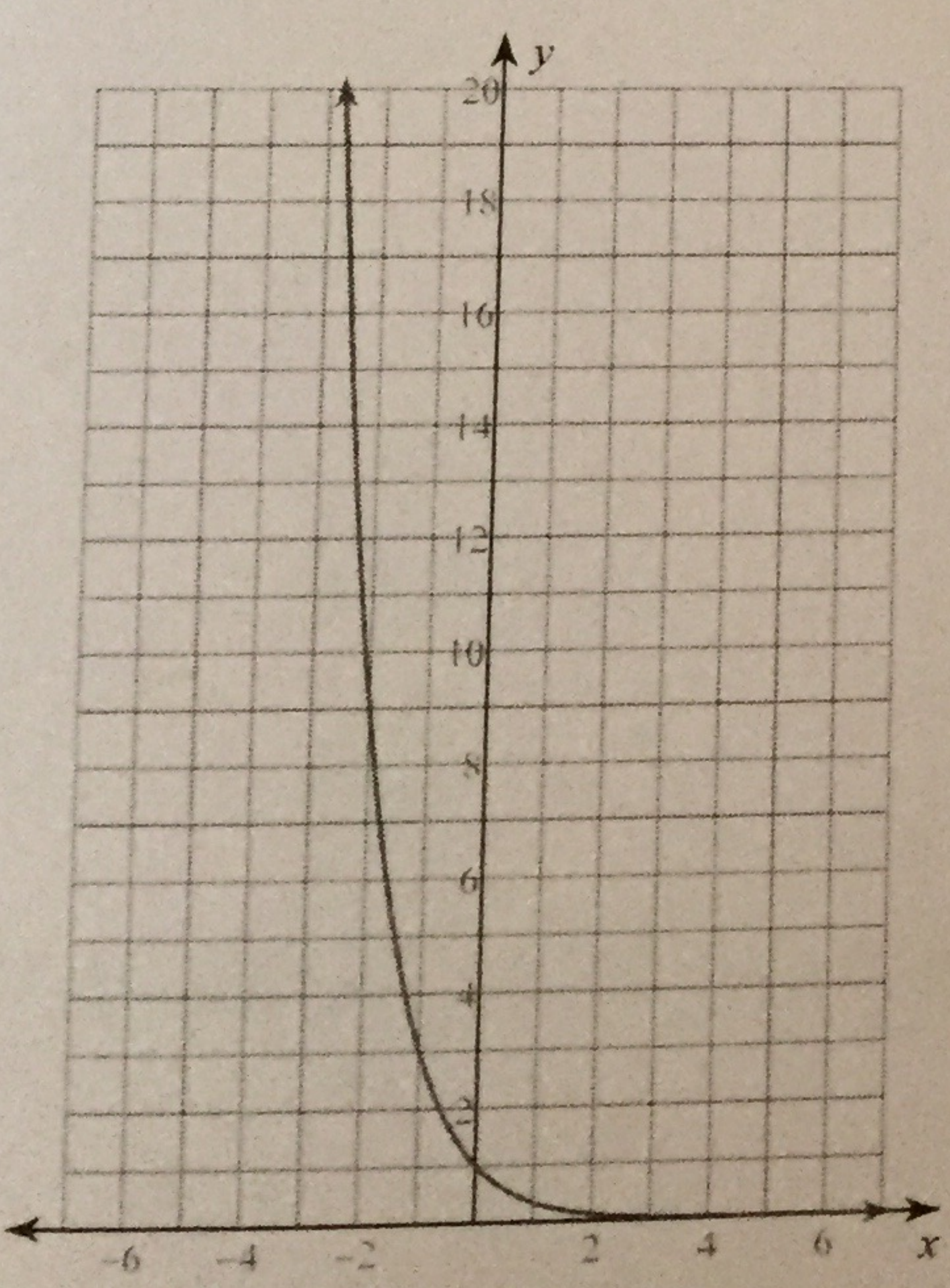
2) $y = 5 \cdot 2^x$



growth
stretch by 5

x	y
-1	2.5
0	5
1	10

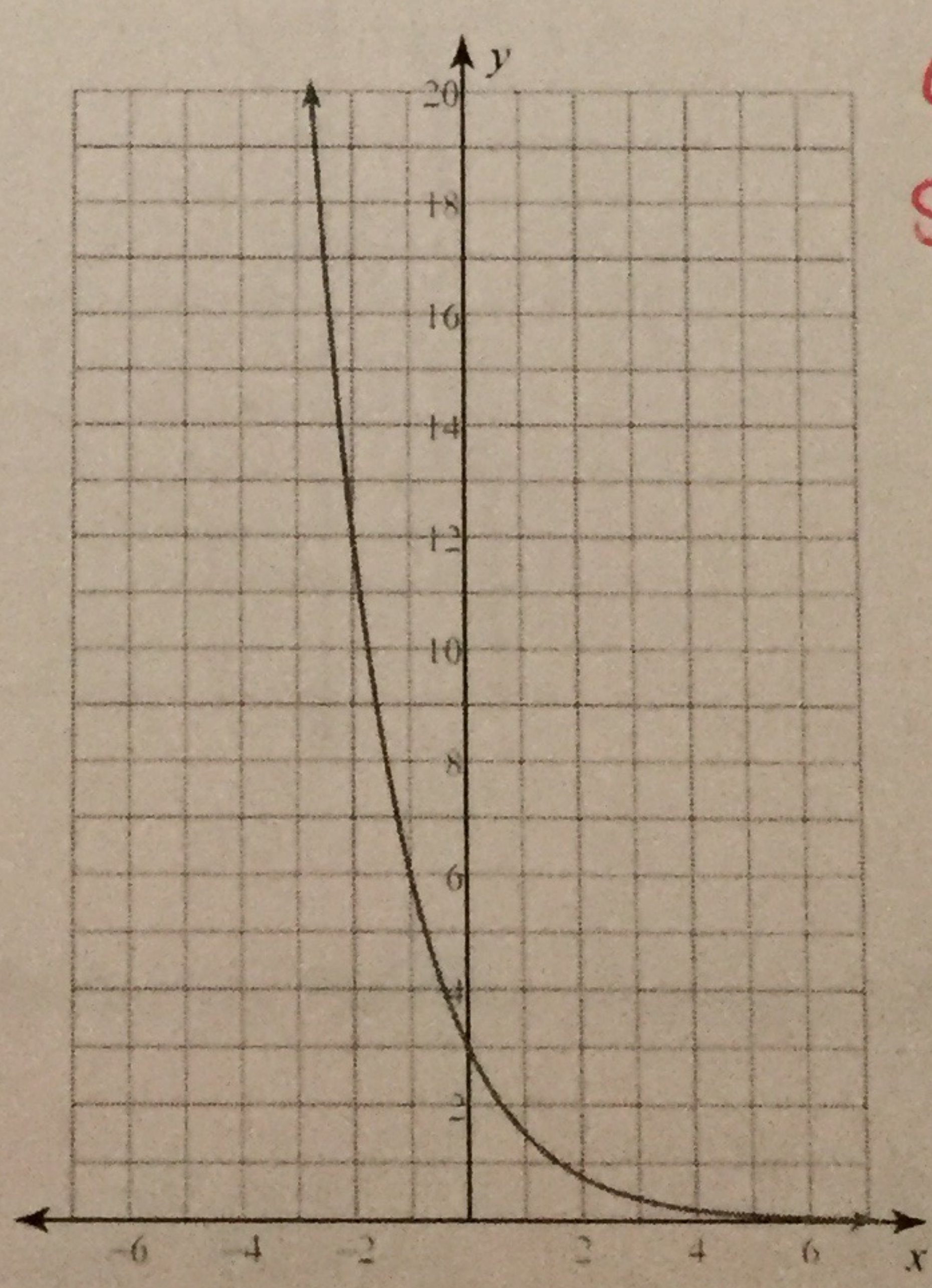
3) $y = \left(\frac{1}{3}\right)^x$



decay

x	y
-1	3
0	1
1	1/3

4) $y = 3 \cdot \left(\frac{1}{2}\right)^x$



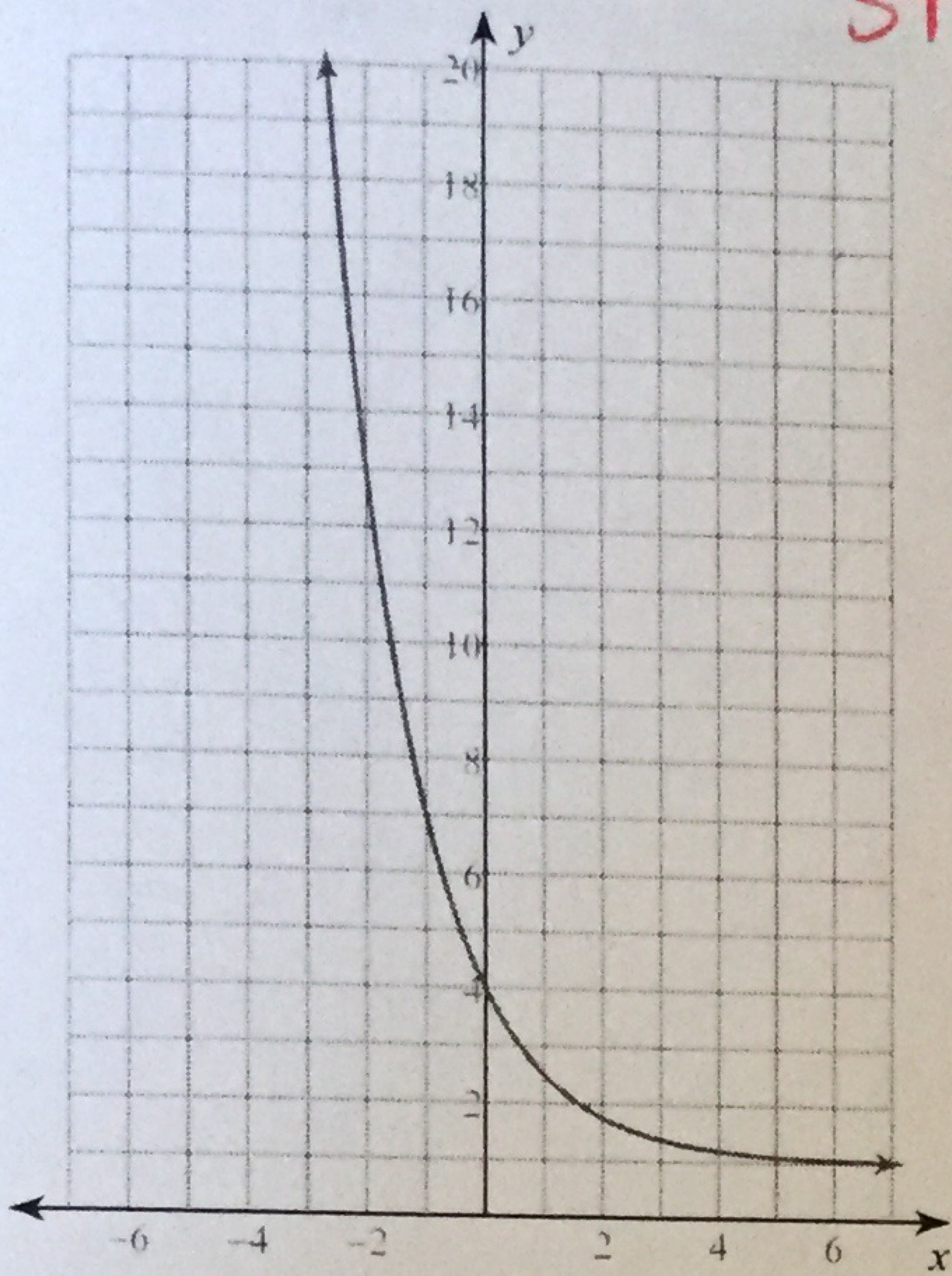
decay
stretch by 3

x	y
-1	6
0	3
1	1.5

Sketch the graph of each function. Describe the transformation from the parent function $y = ab^x$

5) $y = 3 \cdot \left(\frac{1}{2}\right)^x + 1$

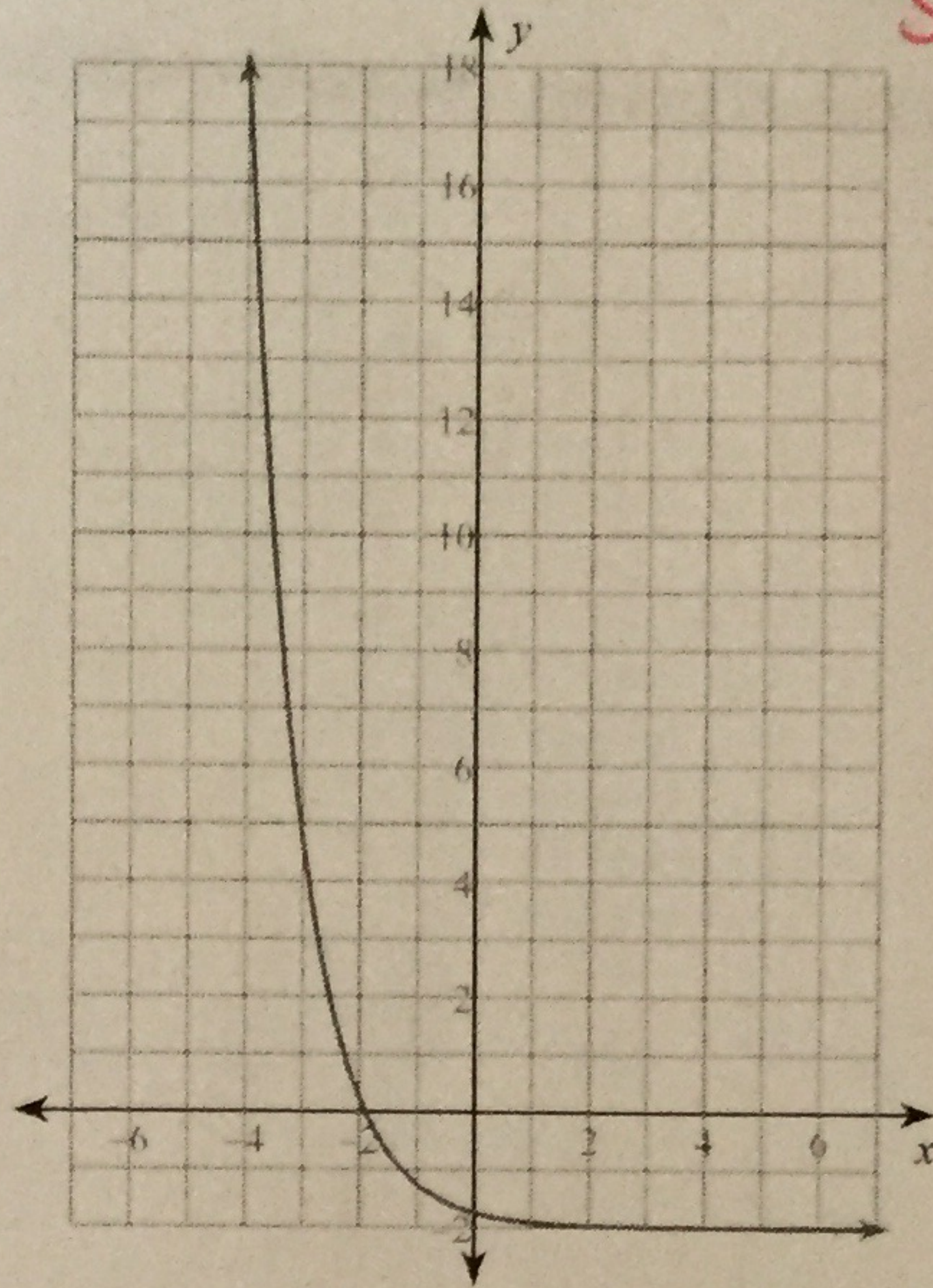
decay
stretch by 3
shift up 1



x	y
-1	7
0	4
1	2.5

6) $y = \frac{1}{4} \cdot \left(\frac{1}{3}\right)^x - 2$

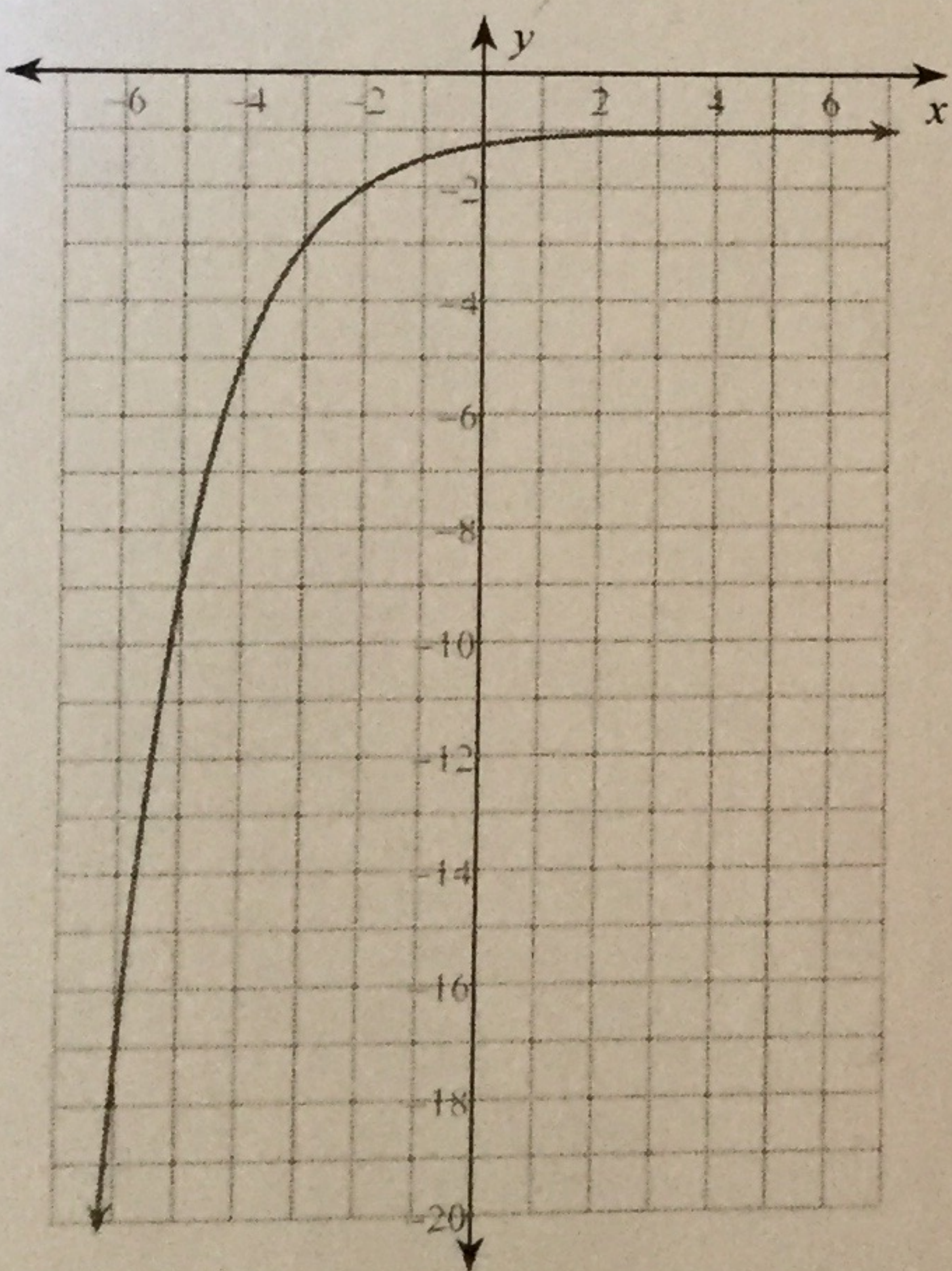
decay
shrink by 1/4
shift down 2



x	y
-1	-1.25
0	-1.75
1	-1.92

7) $y = -\frac{1}{4} \cdot \left(\frac{1}{2}\right)^x - 1$

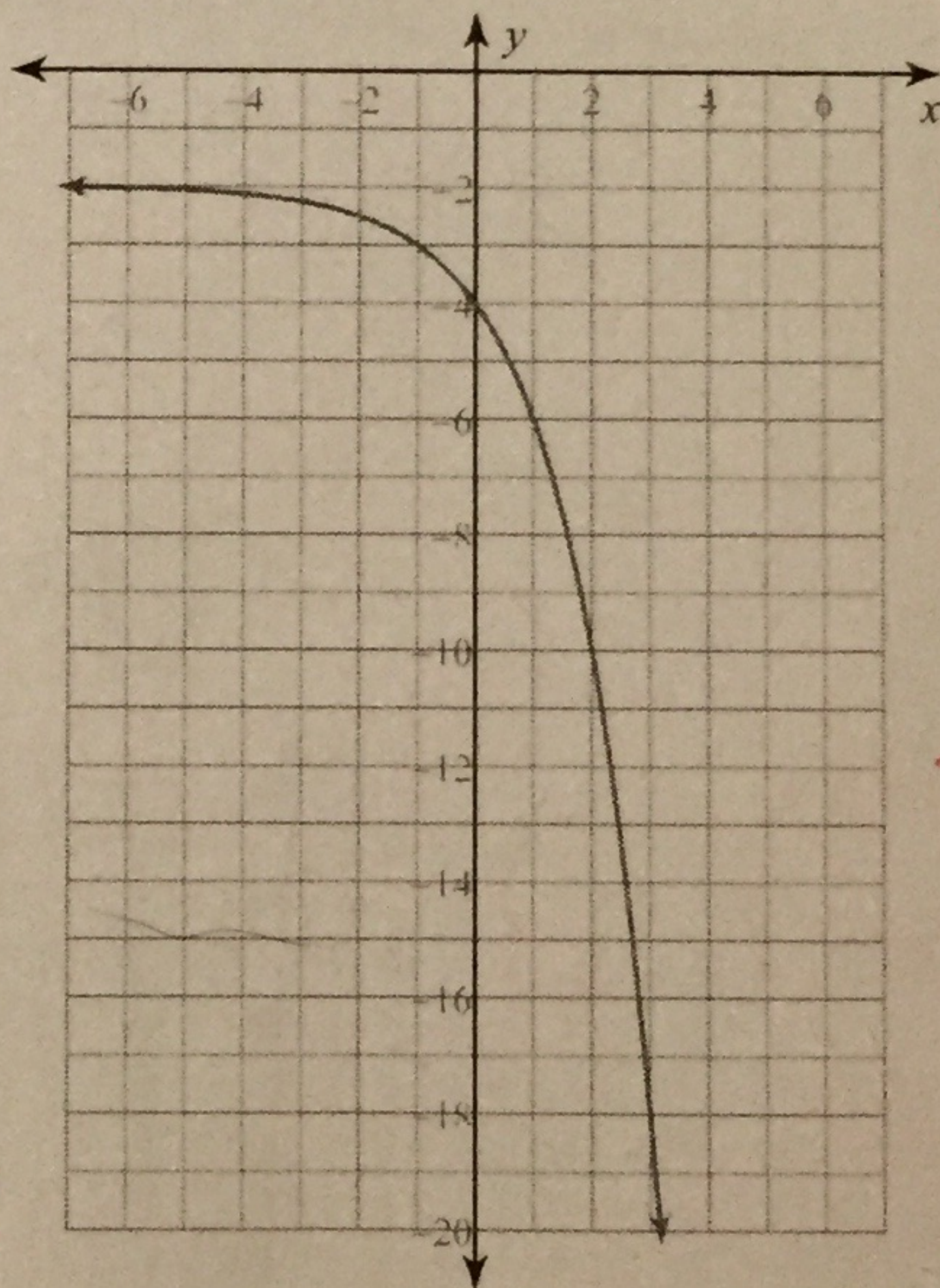
decay
shrink by 1/4
ref. across x
shift down 1



x	y
-1	-1.5
0	-1.25
1	-1.125

8) $y = -2 \cdot 2^x - 2$

growth
stretch by 2
ref. across x
shift down 2



x	y
-1	-3
0	-4
1	-6

Without graphing, describe the transformations and tell whether the function shows growth or decay.

9) $y = 5 \cdot 2^x - 1$

growth
stretch by 5
shift down 1

10) $y = -\frac{1}{4} \cdot \left(\frac{1}{2}\right)^x + 2$

decay
shrink by 1/4
ref. across x
shift up 2

11) $y = \frac{1}{4} \cdot \left(\frac{1}{2}\right)^x + 2$

decay
shrink by 1/4
shift up 2

12) $y = -4 \cdot 2^x - 1$

growth
stretch by 4
ref. across x
shift down 1