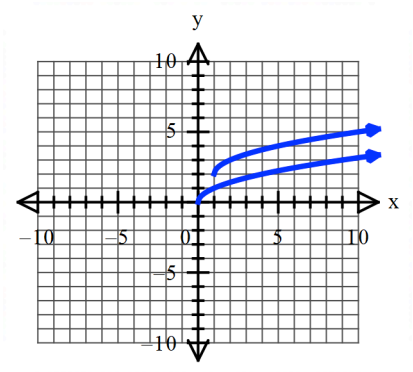
SM2H 1.4 answers 2019-2020

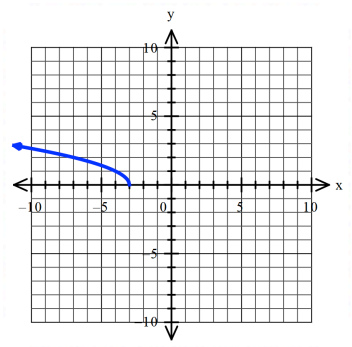
1. a=3, b=5, h=6, k=8
2. a=1, b=1, h=-4, k=-2
3. a=-2 or 2, b=1, h=0, k=7
4. a=1, b=1, h=0, k=0
5. a=1 or -1, b=1 or -1, h=-2, k=0
6. a=12, b=3 or -3, h=0, k=-6
7. vertical stretch by 3
   horizontal shrink by $\frac{1}{5}$
   right 6
   up 8
8. reflection over x-axis
   left 2
   up 5
9. left 4
10. reflection over the y-axis
    horizontal shrink by $\frac{1}{10}$
11. reflection over the y-axis
    vertical shrink by $\frac{1}{2}$
12. reflection over the x-axis
    horizontal stretch by 3
    left 2
    down 9
13. Transformations: translate right 1, up 2
    Endpoint: $(1, 2)$

x	y
1	2
2	3
5	4
10	5



14. Transformations: reflect over y-axis, translate left 3
    Endpoint: $(-3, 0)$

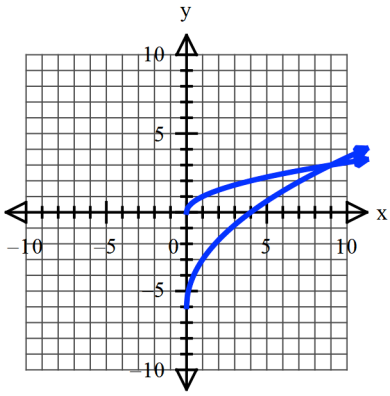
x	$f(x)$
-3	0
-4	1
-7	2
-12	3



15. Transformations: vertical stretch of 3, translate down 6

Endpoint: $(0, -6)$

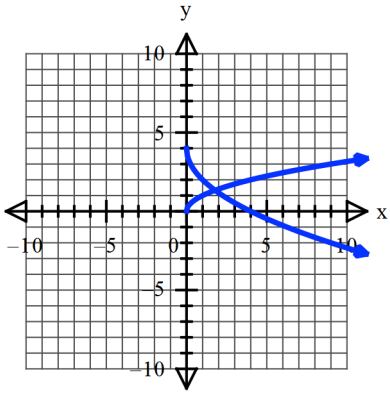
x	$f(x)$
0	-6
1	-3
4	0
9	3



16. Transformations: reflect over x-axis, vertical stretch of 2, translate up 4

Endpoint: $(0, 4)$

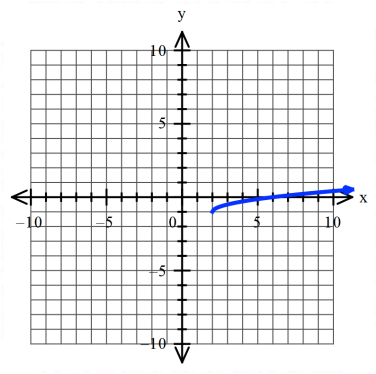
x	y
0	4
1	2
4	0
9	-2



17. Transformations: vertical shrink of $\frac{1}{2}$, translate right 2, down 1

Endpoint: $(2, -1)$

x	$f(x)$
2	-1
3	$-\frac{1}{2}$
6	0
11	$\frac{1}{2}$



18. #13 Domain: $[1, \infty)$ Range: $[2, \infty)$
#14 Domain: $(-\infty, -3]$ Range: $[0, \infty)$
#15 Domain: $[0, \infty)$ Range: $[-6, \infty)$
#16 Domain: $[0, \infty)$ Range: $(-\infty, 4]$
#17 Domain: $[2, \infty)$ Range: $[-1, \infty)$

19. Any answer they put is ok; since this is the first day it does not need to be specific. By the third day it should be accurate.
Here are possible solutions:

- h and k moves the endpoint
- a makes the graph flip over
- a makes the graph shorter or fatter
- a makes the graph bigger or smaller
- h moves endpoint right or left
- k moves endpoint up or down

20. graphs can look different
21. graphs can look different
22. Domain: $[-4, 4) \cup (4, \infty)$ Range: $(-\infty, 6)$
23. picture
24. A. $y = \sqrt{x} + 1$
B. $y = \sqrt{x - 3}$
C. $y = \sqrt{x + 4} - 2$
D. $y = \sqrt{x - 2} + 7$
25. $y = x + 5$
$y = -x$
$y = 4x + 3$
$y = \frac{1}{2}x + 8$