

# 4.7 More Features, More Functions

## *A Practice Understanding Task*

---

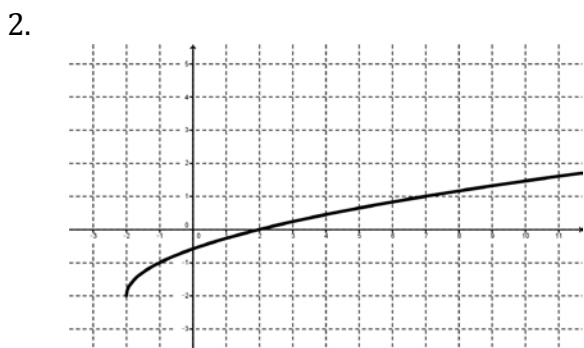
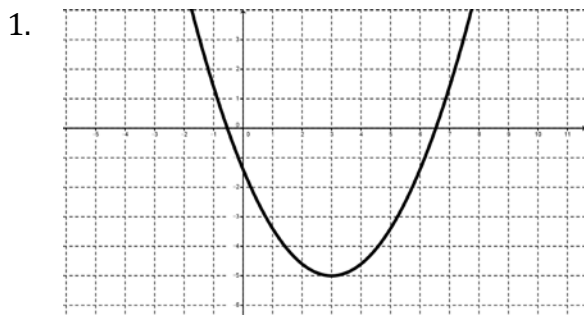


©2013 <http://flic.kr/photos/5DGx2>

### Part I: Features of Functions

Find the following key features for each function:

- Domain and range
- Intercepts
- Location and value of maxima/minima
- Intervals where function is increasing or decreasing

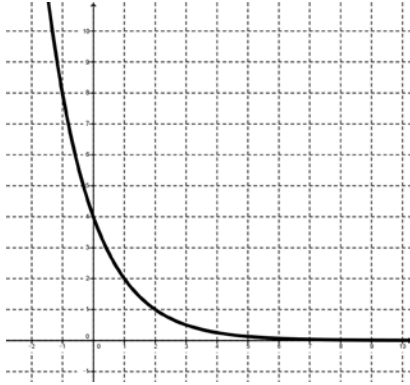


3.

$x$	$f(x)$
-5	-14
1	4
-2	-5
3	10
5	16
0	1
-1	-2

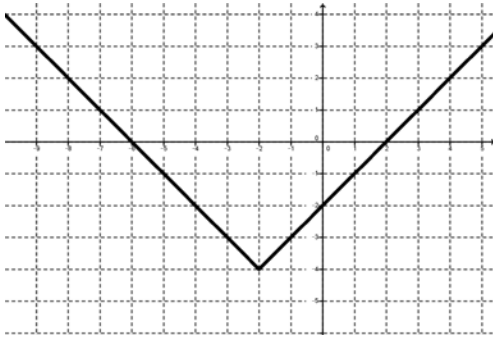


4.

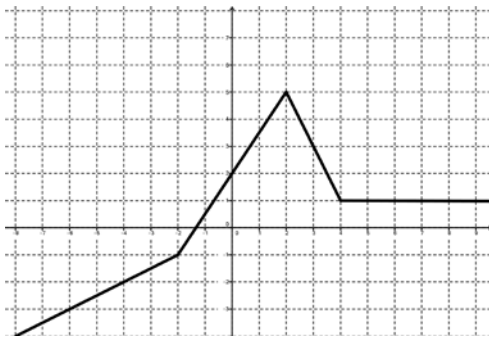


5.  $g(x) = -\frac{1}{3}(x + 4)^2 - 6$

6.



7.



8.  $h(x) = \sqrt{x - 3}$



## Part II: Creating Functions

**Directions:** Write **two** different functions that meet the given requirements.

9. A function that is always increasing
10. A function that is symmetrical about the  $y$ -axis
11. A function with a minimum of  $-2$  at  $x = 5$
12. A function that is decreasing from  $(-\infty, -3)$  then increasing from  $[-3, \infty)$
13. A function with zero real roots
14. A function that has a domain from  $[3, \infty)$
15. A function with a range from  $[3, \infty)$
16. A function with a constant rate of change
17. A function whose second difference is a constant rate of change
18. A function whose domain is the set of all natural numbers, and has a constant difference from one value to the next.
19. A function with  $x$ -intercepts at  $(-3, 0)$  and  $(3, 0)$
20. Create your own requirements.

