

# 3.APK.2 – CHARACTERISTICS OF FUNCTIONS

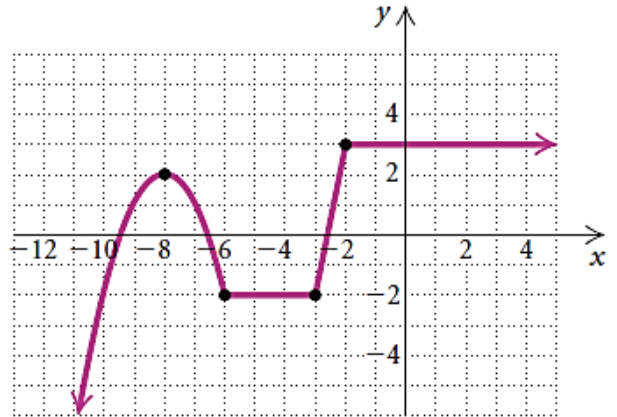
Name: \_\_\_\_\_

Past due on: \_\_\_\_\_ Period: \_\_\_\_\_

True or False?

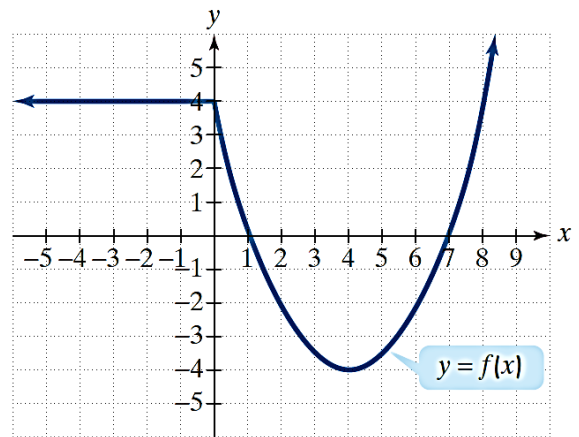
1.  $f(-4) = f(-10)$
2.  $\lim_{x \rightarrow -\infty} f(x) = -\infty$
3. Domain is all real numbers.
4.  $\lim_{x \rightarrow \infty} f(x) = \infty$
5. The  $y$ -intercept is 3.
6. The function is decreasing from  $(-8, -2)$ .
7. Range is  $(-\infty, 3]$ .
8.  $f(100) = 3$
9. There is a maximum value of 2.

**Use with problems 1 – 9.**



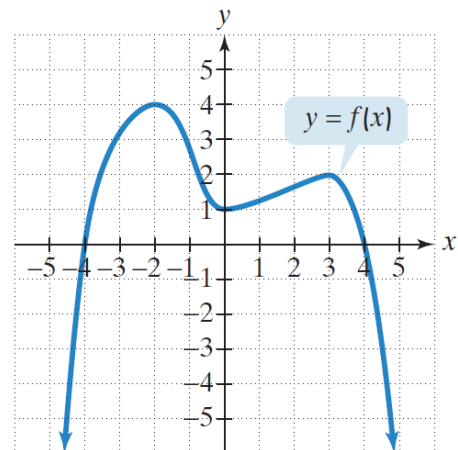
10. Use the graph of  $f$  to determine the following characteristics:
  - a. the domain of  $f$
  - b. the range of  $f$
  - c. the  $x$ -intercepts
  - d. the  $y$ -intercept
  - e. intervals on which  $f$  is increasing
  - f. intervals on which  $f$  is decreasing
  - g. intervals on which  $f$  is constant
  - h. the number at which  $f$  has a relative minimum
  - i. the relative minimum of  $f$
  - j.  $f(-3)$
  - k. the values of  $x$  for which  $f(x) = -2$

**Use with problem 10.**

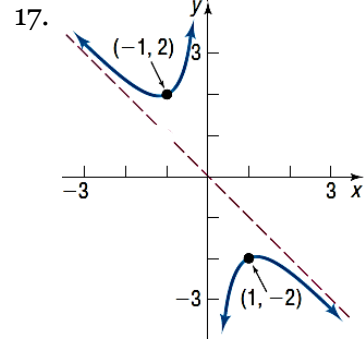
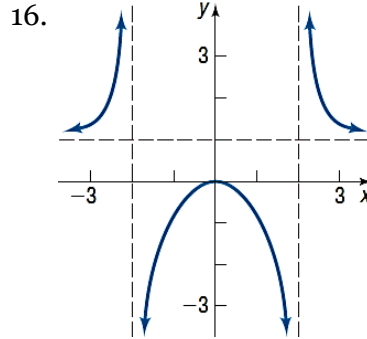
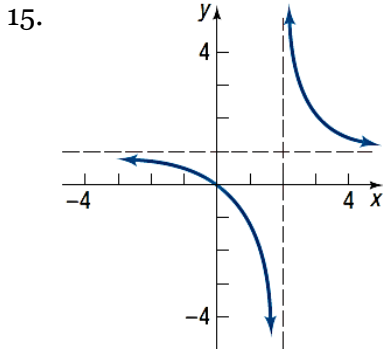
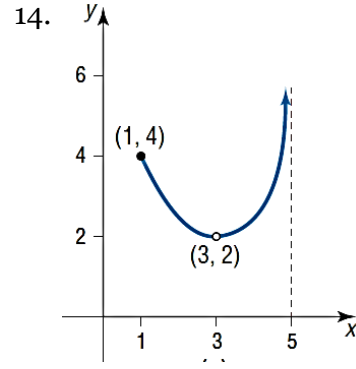
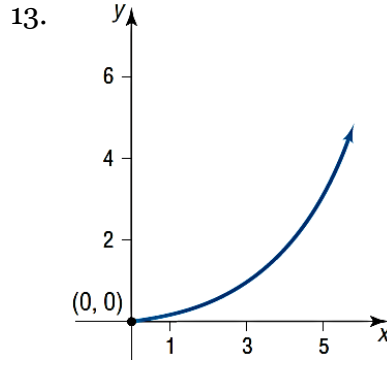
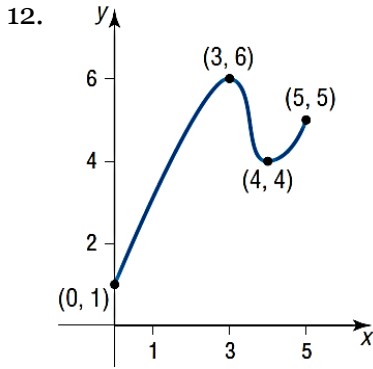


11. Use the graph of  $f$  to determine the following characteristics:
  - a. the domain of  $f$
  - b. the range of  $f$
  - c. the  $x$ -intercepts
  - d. the  $y$ -intercept
  - e. intervals on which  $f$  is increasing
  - f. intervals on which  $f$  is decreasing

**Use with problem 11.**



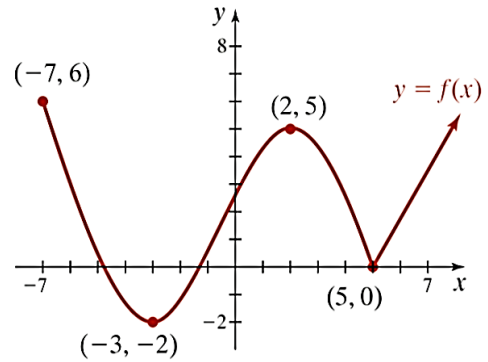
Identify the domain and the range of the functions shown.



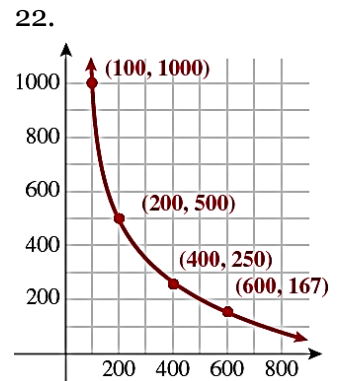
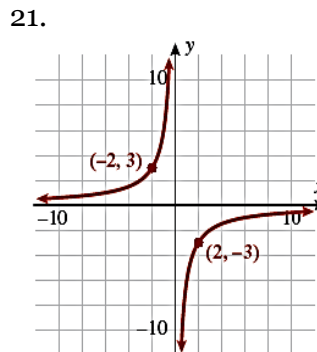
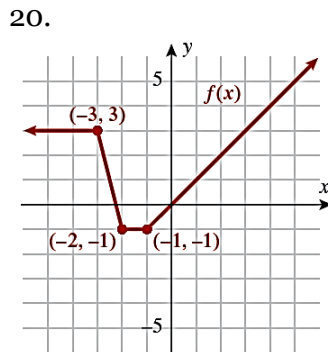
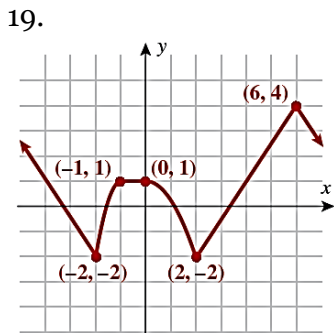
18. Identify the characteristics of the function shown.

Use with problem 18.

- What is the domain of  $f$ ?
- What is the range of  $f$ ?
- There is a maximum of \_\_\_\_\_ at  $x =$  \_\_\_\_\_.
- There is a minimum of \_\_\_\_\_ at  $x =$  \_\_\_\_\_.  
*There are two; just identify one of them.*
- $\lim_{x \rightarrow \infty} f(x) =$



Identify the end behavior of each function.



$\lim_{x \rightarrow -\infty} f =$        $\lim_{x \rightarrow \infty} f =$

$\lim_{x \rightarrow -\infty} f =$        $\lim_{x \rightarrow \infty} f =$

$\lim_{x \rightarrow -\infty} f =$        $\lim_{x \rightarrow \infty} f =$

$\lim_{x \rightarrow 0^+} f =$        $\lim_{x \rightarrow \infty} f =$