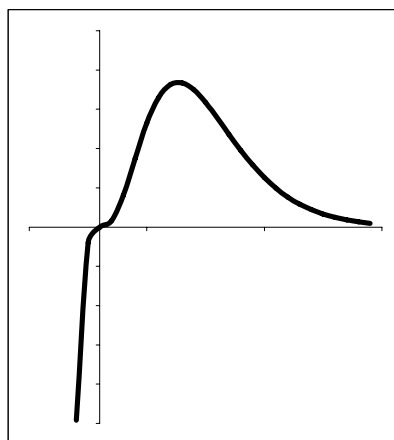
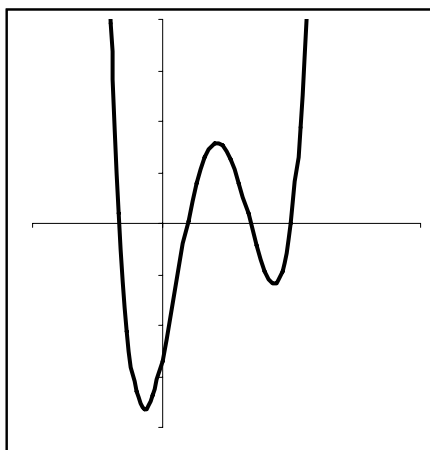
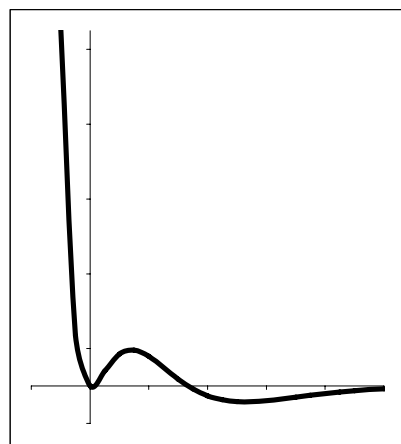
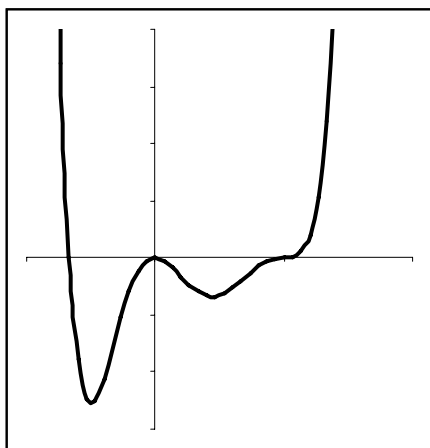
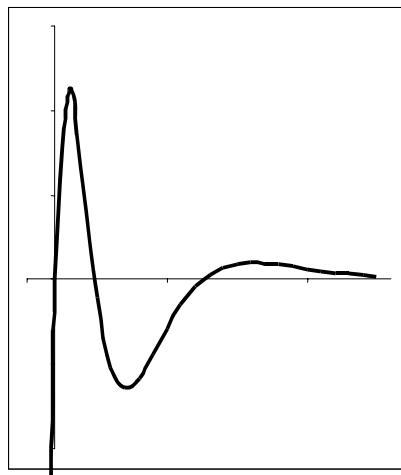
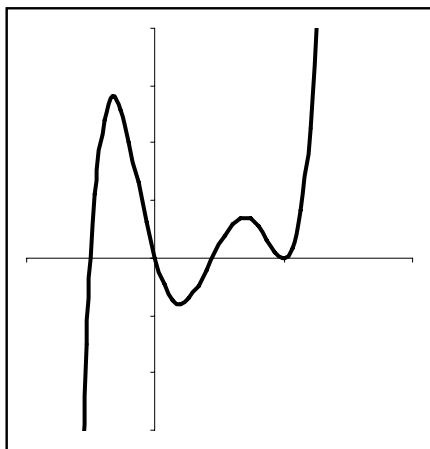


In each column of graphs determine which is  $f(x)$ ,  $f'(x)$  and  $f''(x)$ . Include your reasoning



1. If  $f(x)$  is increasing, then  $f'(x)$  is \_\_\_\_\_.
2.  $f'(x)$  is negative if  $f(x)$  is \_\_\_\_\_.
3.  $f''(x)$  is positive if  $f(x)$  is \_\_\_\_\_.
4.  $f''(x)$  is negative if  $f'(x)$  is \_\_\_\_\_.
5. If  $f(x)$  is concave down, then  $f'(x)$  is \_\_\_\_\_.
6. If  $f'(x)$  is increasing, then  $f''(x)$  is \_\_\_\_\_.
7. If  $f'(x)$  is decreasing, then  $f(x)$  is \_\_\_\_\_.
8. If  $f'(x) > 0$  and  $f''(x) < 0$ , then  $f(x)$  looks like \_\_\_\_\_.
9. If  $f(x)$  is an exponential decay curve, then  $f'(x)$  is \_\_\_\_\_ and \_\_\_\_\_.
10. If  $f(x)$  has an inflection point, then  $f(x)$  has a change in \_\_\_\_\_.
11. If  $f(x)$  has a horizontal tangent, then  $f'(x)$  has a \_\_\_\_\_.
12. If  $f'(a) = 0$ , then  $f(x)$  has a \_\_\_\_\_ at \_\_\_\_\_.
13. If  $f'(x)$  has a change of sign and is always defined, then  $f(x)$  has either a \_\_\_\_\_ or \_\_\_\_\_.
14. If  $f(x)$  has a corner at  $x = a$ , then  $f'(a)$  is \_\_\_\_\_.
15. If  $f'(x) = 0$  for all values of  $x$ , then  $f(x)$  is \_\_\_\_\_.
16. If  $f''(x) = 0$  for all values of  $x$ , then  $f(x)$  is \_\_\_\_\_.
17. If  $f'(a) = 2$  and  $g(x) = f(x) - 5$ , then  $g'(a) =$  \_\_\_\_\_.
18. If  $f(x)$  is concave down everywhere, then  $-f(x)$  is \_\_\_\_\_.