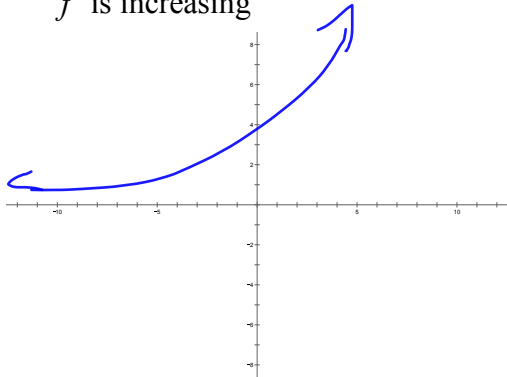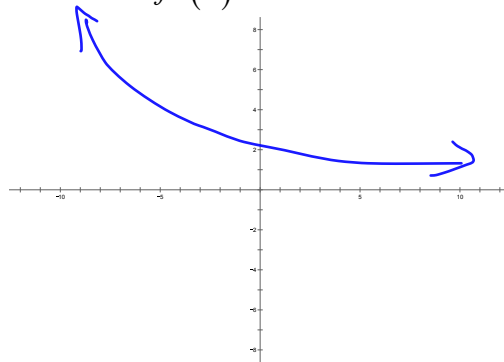**Properties of Graphs Activity**

For each example, sketch a possible graph for a function f that has the specified properties. Compare your graphs with your group members and discuss how you determined your graph.
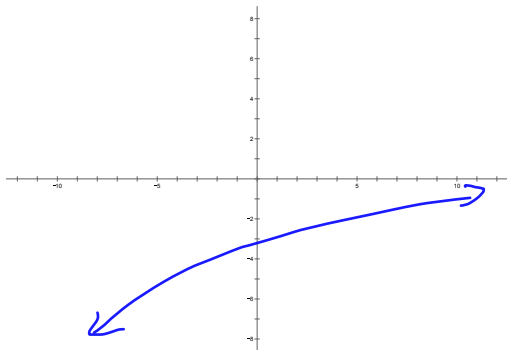
1. f is increasing,
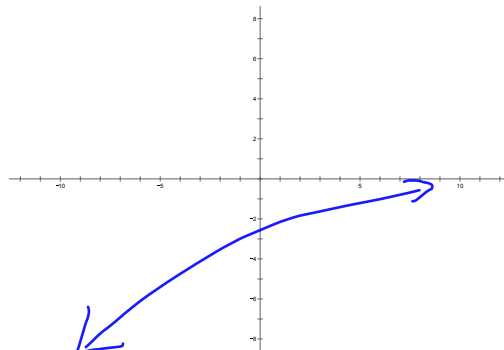 $f(x) > 0$,
   f' is increasing
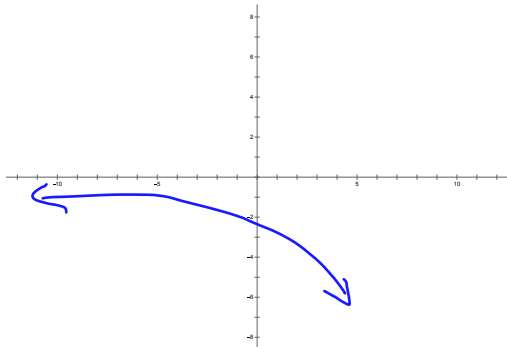
2. f is decreasing,
   $f(x) > 0$,
   $f''(x) > 0$
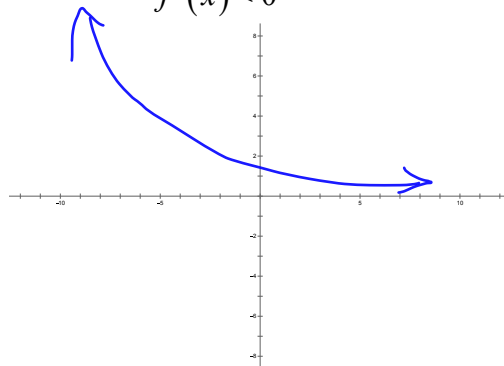
3. f is increasing,
   $f(x) < 0$,
   $f''(x) < 0$

4. $f'(x) > 0$, ↑
   $f(x) < 0$,
   $f''(x) < 0$ ccd

5. f' is decreasing, ccd
   $f(x) < 0$,
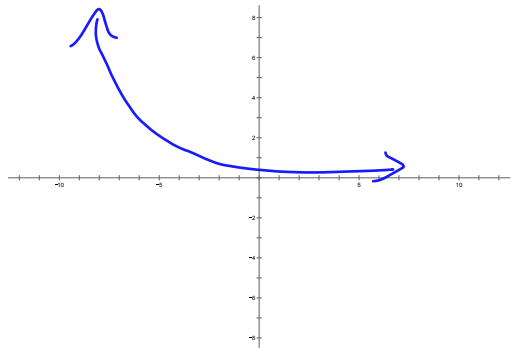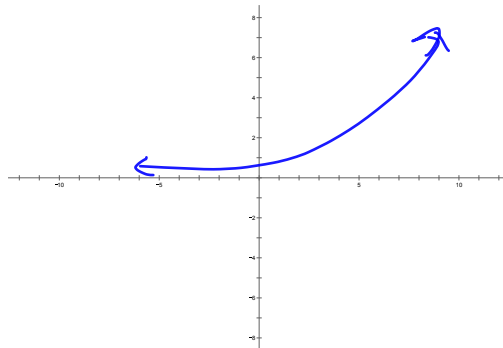 $f'(x) < 0$ ↘
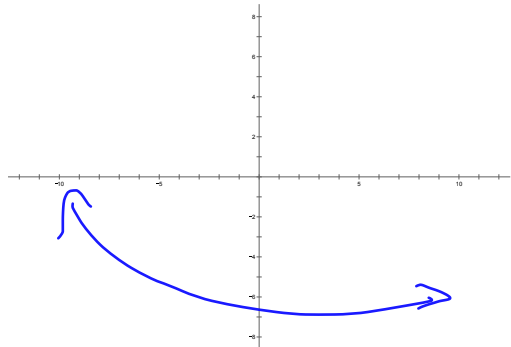
6. f' is increasing, ccu
   $f(x) > 0$,
   $f'(x) < 0$ dec

7. $f'(x) < 0$, *dcl*
   $f(x) > 0$,
   $f''(x) < 0$ *ccu*
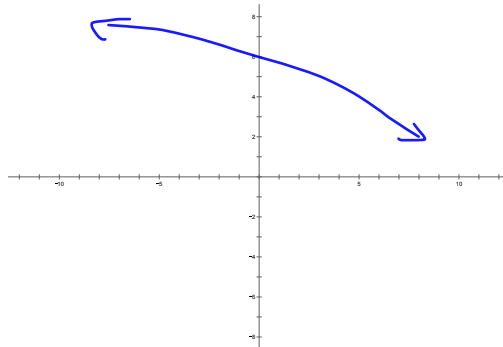

8. f is increasing,
   $f(x) > 0$,
   $f''(x) > 0$ *ccu*

9. f is decreasing,
   $f(x) < 0$,
   f' is increasing *ccu*

10. f is decreasing,
    $f(x) > 0$,
    f' is decreasing *ccd*

11. f is increasing,
    $f(x) < 0$,
    f' is increasing *ccd*
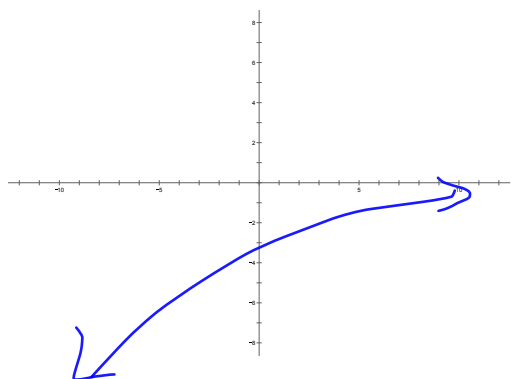
12. f is decreasing,
    $f(x) < 0$,
    $f''(x) < 0$ *ccd*
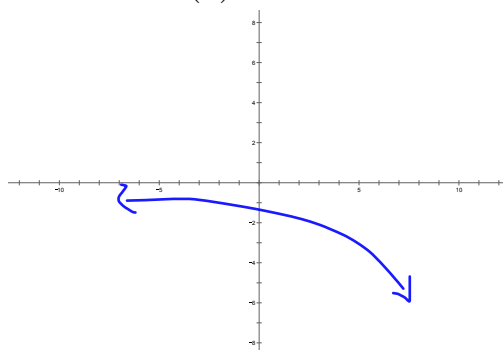
13. *f* is increasing,

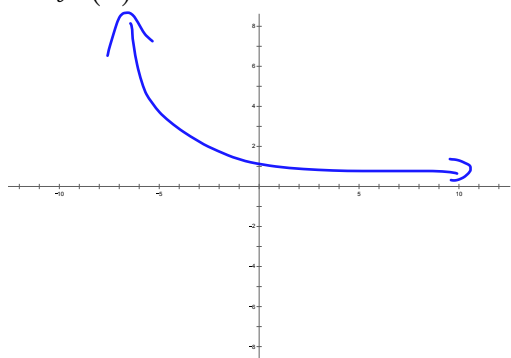$f(x) > 0,$
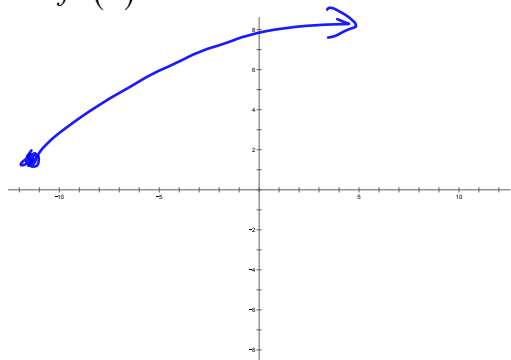
$f''(x) < 0$ ccd

14. $f'(x) > 0,$ dec

$f(x) > 0,$

$f''(x) > 0$ ccu
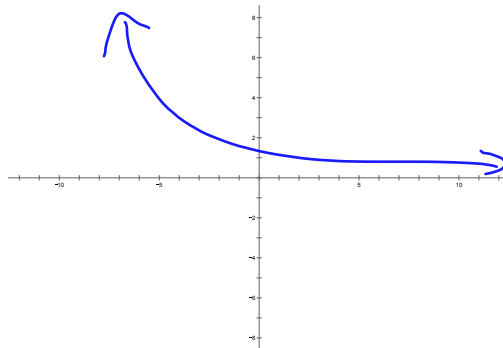
15. $f''(x) > 0,$ ccu

$f(x) > 0,$

$f'(x) < 0$ dec

16. $f'(x) < 0,$ dec

$f(x) < 0,$

$f''(x) > 0$ ccu