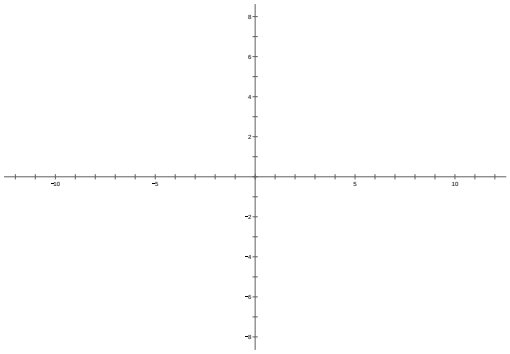
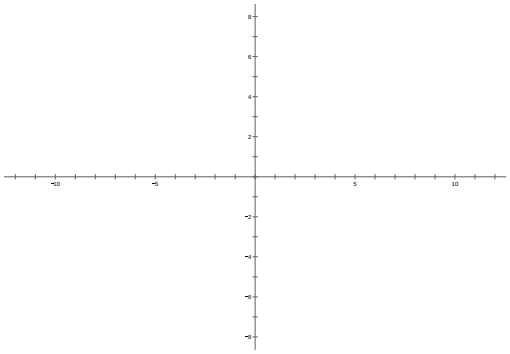
**Properties of Graphs Activity**

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.

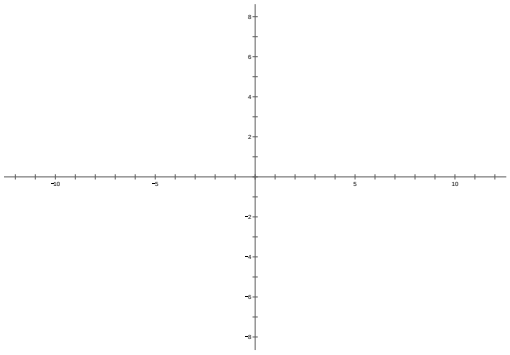
1. $f$ is increasing,
   $f(x) > 0$,
   $f'$ is increasing



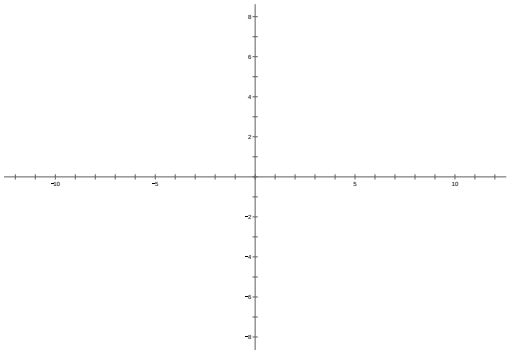
2. $f$ is decreasing,
   $f(x) > 0$,
   $f''(x) > 0$



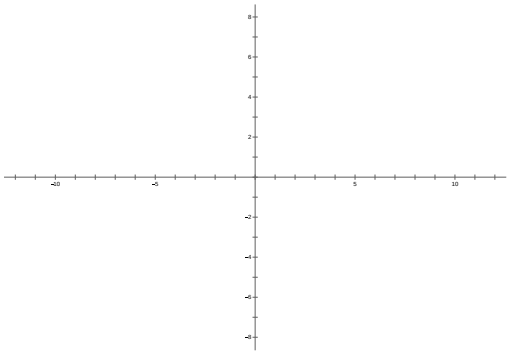
3. $f$ is increasing,
   $f(x) < 0$,
   $f''(x) < 0$



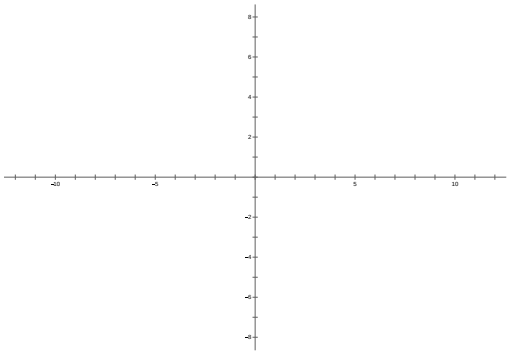
4. $f'(x) > 0$,
   $f(x) < 0$,
   $f''(x) < 0$



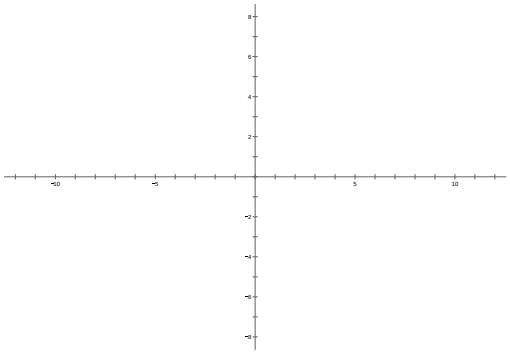
5. $f'$ is decreasing,
   $f(x) < 0$,
   $f'(x) < 0$



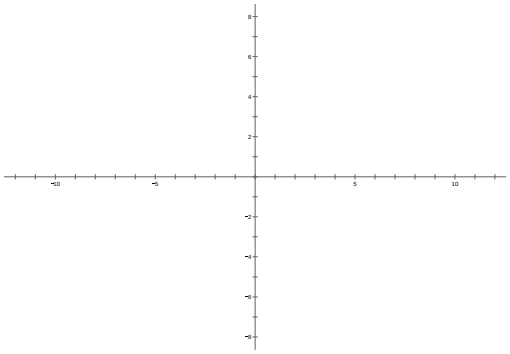
6. $f'$ is increasing,
   $f(x) > 0$,
   $f'(x) < 0$



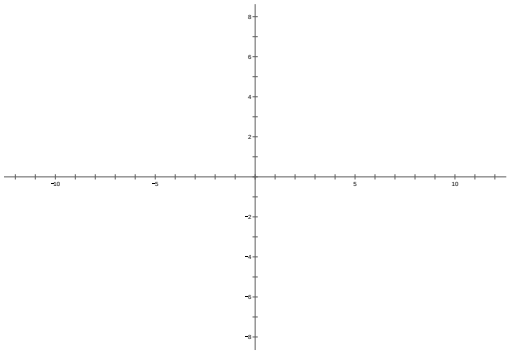
7. $f'(x) < 0$,
$f(x) > 0$,
$f''(x) < 0$



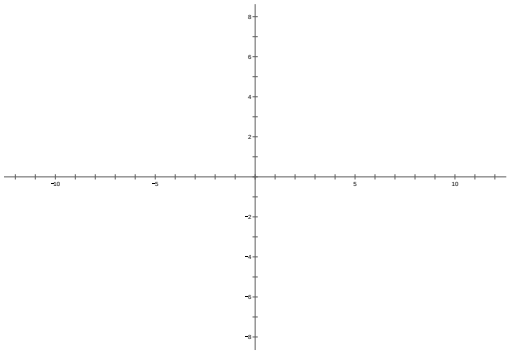
8. $f$ is increasing,
$f(x) > 0$,
$f''(x) > 0$



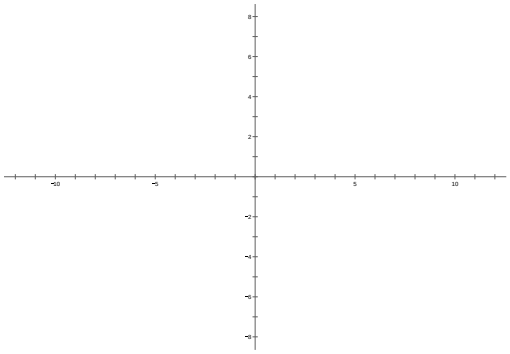
9. $f$ is decreasing,
$f(x) < 0$,
$f'$ is increasing



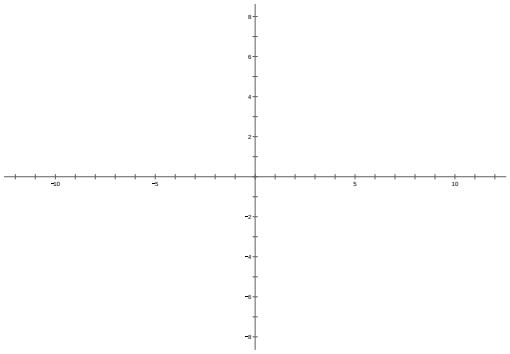
10. $f$ is decreasing,
$f(x) > 0$,
$f'$ is decreasing



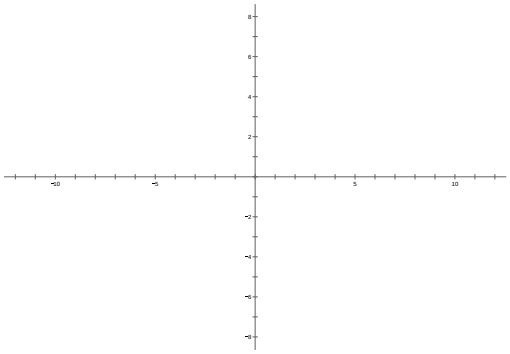
11. $f$ is increasing,
$f(x) < 0$,
$f'$ is increasing



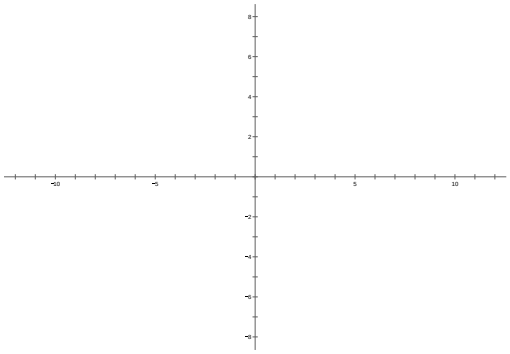
12. $f$ is decreasing,
$f(x) < 0$,
$f''(x) < 0$



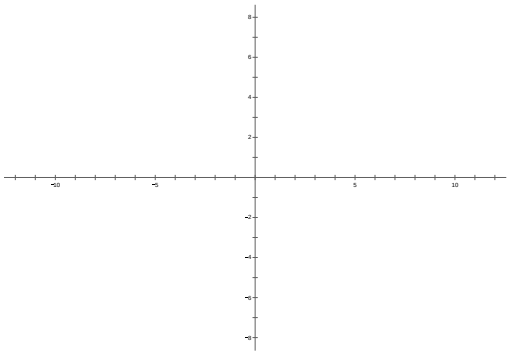
13. $f$ is increasing,
    $f(x) > 0$,
    $f''(x) < 0$



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



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



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