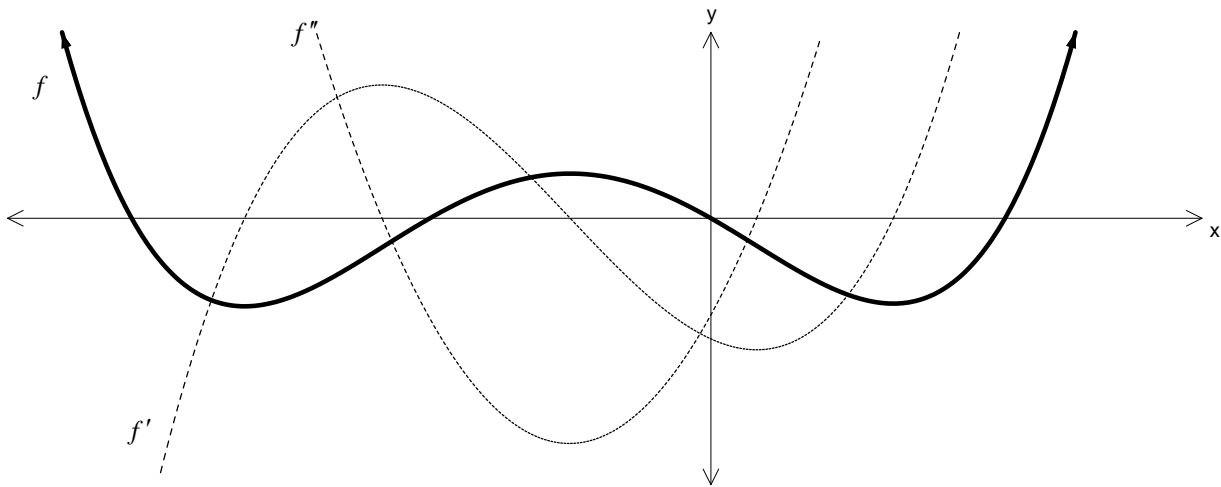


**AP Calculus**  
**Assignment 3.3**  
**Relationship Between Graphs of  $f$ ,  $f'$ ,  $f''$**



Use the graphs of  $f$ ,  $f'$ ,  $f''$  given above to complete the following statements:

- If  $f$  is increasing,  $f'$  is \_\_\_\_\_
- If  $f$  is decreasing,  $f'$  is \_\_\_\_\_
- When  $f$  has a local max,
  - $f'$  is \_\_\_\_\_ and changes from \_\_\_ to \_\_\_
  - $f''$  is \_\_\_\_\_
- When  $f$  has a local min,
  - $f'$  is \_\_\_\_\_ and changes from \_\_\_ to \_\_\_
  - $f''$  is \_\_\_\_\_
- If  $f$  is concave up,
  - $f'$  is \_\_\_\_\_                       $f''$  is \_\_\_\_\_
- If  $f$  is concave down,
  - $f'$  is \_\_\_\_\_                       $f''$  is \_\_\_\_\_
- When  $f$  changes from CU to CD (inflection point),
  - $f'$  has a \_\_\_\_\_
  - $f''$  changes from \_\_\_ to \_\_\_
- When  $f$  changes from CD to CUD (inflection point),
  - $f'$  has a \_\_\_\_\_
  - $f''$  changes from \_\_\_ to \_\_\_