


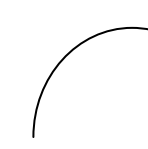
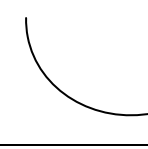
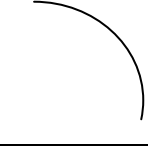
## AP Calculus

### 3.4 – Curve Sketching

Most curves are made up of smaller **arcs** that have one of **4 basic shapes** as illustrated below.

These shapes are the result of the 4 possible sign combinations of  $f'$  and  $f''$ .

- The sign of  $f'$  determines whether  $f$  is \_\_\_\_\_ or \_\_\_\_\_.
- The sign of  $f''$  determines whether  $f$  is \_\_\_\_\_ or \_\_\_\_\_.

$f''$	$+$ <b>CU</b>	$-$ <b>CD</b>
$f'$	$++$	$+ -$
$+$ <b>Increasing</b>		
$-$ <b>Decreasing</b>	$- +$ 	$--$ 

When sketching curves, it is necessary to determine the \_\_\_\_\_

→ where  $f$  changes from increasing to decreasing, or from CU to CD.

These transition points occur when  $f'$  and  $f''$  change signs, e.g.:

