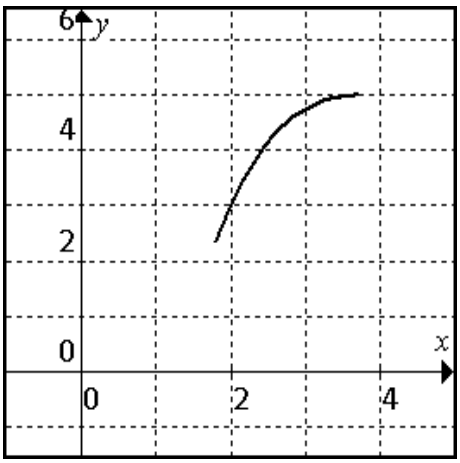
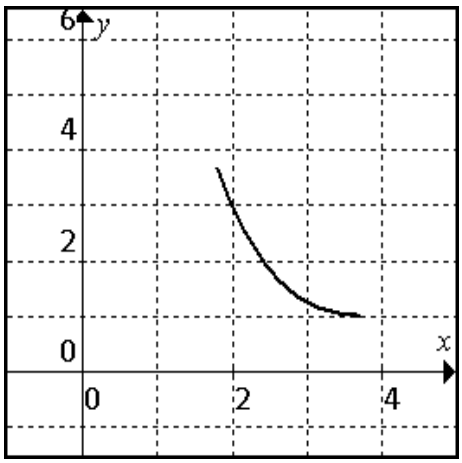
MCV 4U

INCREASING & DECREASING FUNCTIONS



A function **INCREASES** from left to right if the y-coordinates increase in value.

A function **DECREASES** from left to right if the y-coordinates decrease in value.



The **DERIVATIVE** of a function can be used to determine where a function increases and where it decreases.

If $f(x)$is continuous on the interval [a, b]:

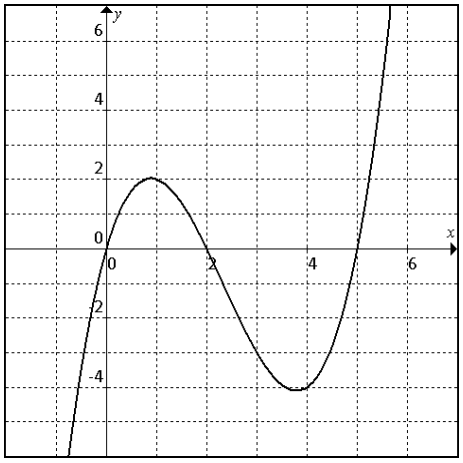
$f(x)$	INCREASES ON [a, b]	DECREASES on [a, b]
$f'(x)$	> 0	< 0

INTERVAL BOUNDARY POINTS OCCUR WHEN...

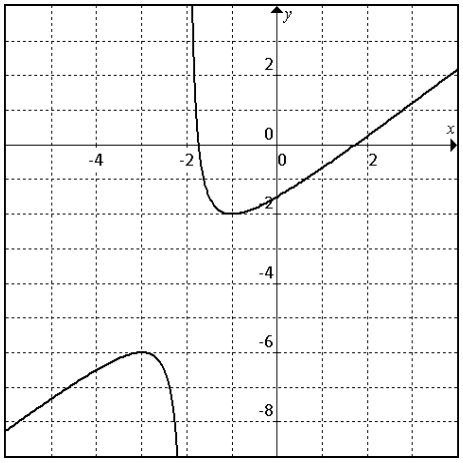
① $\boldsymbol{f'(x) = 0}$ **OR** ② $\boldsymbol{f'(x) = dne}$

EXERCISE: Determine the intervals of increase/decrease for each function.

1.



2.



3. $f(x) = x^3 + 3x^2 - 2$

x			
test value			
$f'(x)$			
$f(x)$			

4. $f(x) = \frac{x}{x^2+1}$

5. $f(x) = \frac{x^3}{x^2-9}$

6. $f(x) = \frac{4}{x^3+1}$