Show all your work. No calculators, no books/notes are allowed.

Name (please print): _____

Student number: _____

1. Consider a function f whose derivative is given by

$$f'(x) = \frac{x^2}{x-1},$$

complete the following sign chart to determine the concavity of f and its inflection points. Also, write down the intervals where f is concave up and concave down.

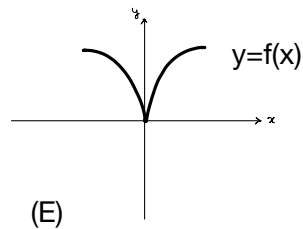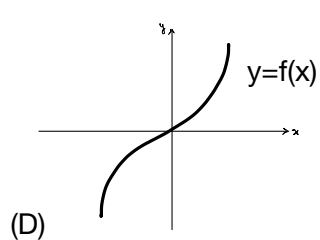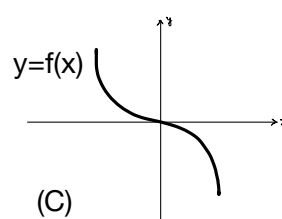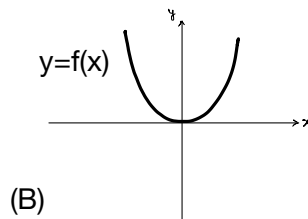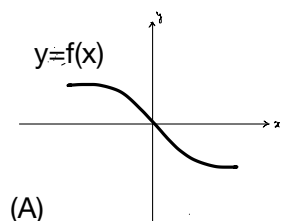| x	
$f''(x)$	
$f(x)$	

Interval(s) where f is concave **up**:

Interval(s) where f is concave **down**:

Inflection point(s) of f:

2. Choose the graph of the function f for which

- $f''(x) > 0$ in $(-\infty, 0)$

and

- $f''(x) < 0$ in $(0, \infty)$

y=f(x)

(A)

y=f(x)

(B)

y=f(x)

(C)

y=f(x)

(D)

y=f(x)

(E)

3. **(Bonus)** Choose three of the following resources that you will most likely use to prepare for the midterm:

Textbook	○
Lecture notes	○
WebWork problems	○
Quiz/HW problems	○
Workshop problems	○
Past Exams (MER wiki page)	○