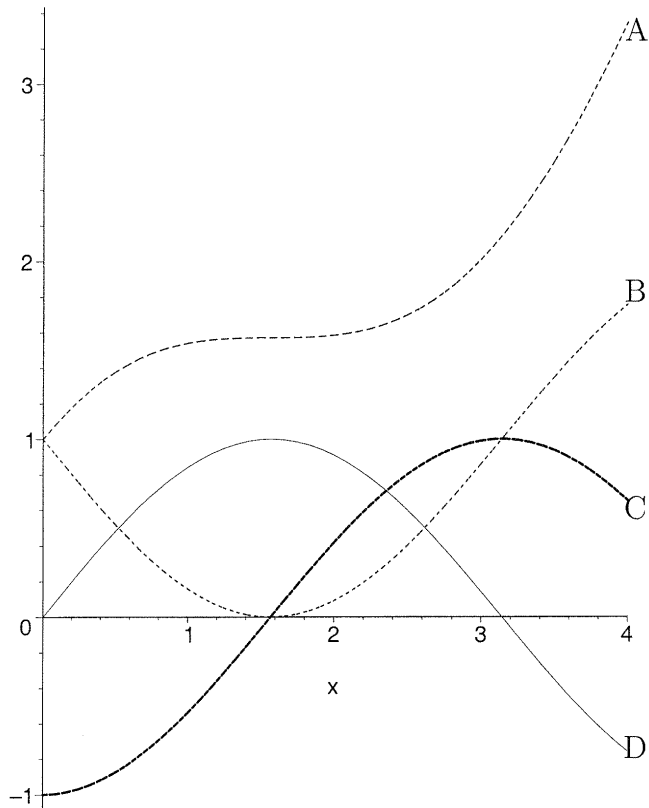


STUDENT NAME:

Calculus 1550, section 20. Wednesday, October 15, 2003. Fifteenth quiz

1. The following graph shows the function $f(x)$ together with $f'(x)$, $f''(x)$ and $f'''(x)$. Which of A, B, C, D is which? Fill in the answers in the table. (1 point each.)



f	A
f'	B
f''	C
f'''	D

2. Find the first, second and third derivatives of $f(x) = xe^x$. (2 points each).

$$f'(x) = xe^x + e^x$$

$$f''(x) = xe^x + 2e^x$$

$$f'''(x) = xe^x + 3e^x$$

Note need to use product rule. eg $(xe^x)' = x'e^x + x(e^x)'$
 $= e^x + xe^x$

3. Bonus point: $\frac{d^{50}}{dx^{50}} xe^x = xe^x + 50e^x$
 $= \boxed{e^x(x + 50)}$