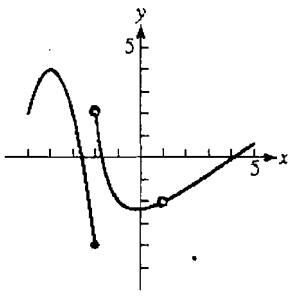
大葉大學96學年度轉學招生考試試題紙						
學系	部別：日間部/第二部/進修學士班/四技	年級	考試科目（中文名稱）	考試日期	節次	備註
財務金融學系	日間部	二	微積分	7月31日	2	共乙頁

註：考生可否攜帶計算機或其他資料作答，請在備註欄註明（如未註明，一律不准攜帶）。 11:10 ~ 12:30

Each problem counts 10 credit points.

1) *Use the function f whose graph is shown below to answer the questions.*



(a) Find $\lim_{x\to -2^-} f(x)$ *and* $\lim_{x\to -2^+} f(x)$.

(b) Is the function continuous at x = -2? Explain.

(c) Find $\lim_{x\to 1} f(x)$.

(d) Is the function continuous at x = 1? If not, explain how the function could be extended to be continuous at x = 1.

Evaluate the limit.

2) $\lim_{t\to 9} \dfrac{-3-\sqrt{t}}{9-t}$

3) $\lim_{x\to 0^+} \dfrac{\sin x}{x^3}$

Find *dy/dx* of the following functions.

4) $xy + x - y = x^2y^2$

5) $y = (3x + 10)^5(x - 11)^{-2}$

6) $y = \cos\left(\sqrt{10x + 12}\right)$

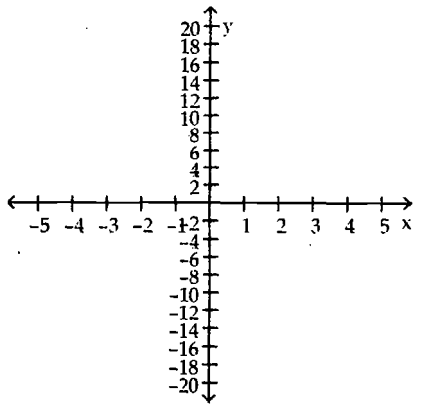
Evaluate the integral or state that it diverges.

7) $\int_{-\infty}^{0} \dfrac{19}{(x-1)^3}\,dx$

8) $\int x^2 \ln 3x\,dx$

Graph the function and identify the intervals on which function is increasing, decreasing, concave up, and concave down. Also, locate and identify any local extreme values and inflection points.

9) $y = -2x^4 + 8x^3 - 2x^2 - 9x + 2$



Find the area of the shaded region.

10) $f(x) = x^3 + x^2 - 6x$

$g(x) = 6x$