THE HONG KONG POLYTECHNIC UNIVERSITY

HONG KONG COMMUNITY COLLEGE

Subject Title : Foundation Mathematics **Subject Code** : CCN1068

Session : Semester One, 2018/19

Numerical Answers

Question B1

(a) Let $y = t$,
$t \in \Re$
$x + 2t = 6$
$x = 6 - 2t$

(b) No Solution

Question B2

(a)(i) $f^{-1}(x) = \dfrac{1}{\sqrt{1-x^2}}$

Question B3

(a) $= e^2$

(b) $= \dfrac{-1}{3}$

(c) $= 0$

Question B4

(a) $24x - y = 0$

(b) $a = -2, or\ a = 2$
$m = 0;\ m = 24$

Question B5

(a) $x^3 - 4x = (Ax + B)(x^2 + 1) + (Cx + D)$
$A = 1,\ B = 0,\ C = -5,\ D = 0$

(b) $= \dfrac{1}{2}\ln|2| - \dfrac{5}{4}$

Question C1

(a)(i) $\dfrac{dy}{dx} = \dfrac{\left(x^2 - x\right)\dfrac{1}{x} - (2x-1)\ln x}{\left(x^2 - x\right)^2}$

(a)(ii) $\dfrac{dy}{dx} = 2ge^{\sin(2x)}g\cos(2x)$

(a)(iii) $2x\sec^2 2x + \tan(2x)$

(b)(i) $P(\bar{L}\,|R) = \dfrac{P(\bar{L} \cap R)}{P(R)}$

$= \dfrac{0.0609}{0.07}$

$= 0.87$

(b)(ii) $P(L \cap \bar{R}) = 0.04 \times 0.93$

$= 0.0372$

(b)(iii) $P(L) = P(L \cap \bar{R}) + P(L \cap R)$

$= 0.0091 + 0.0372$

$= 0.0463$

Question C2

(b) $= f'(-2)[6]$

$= 4(6)$

$= 24$

(c) $\lim_{x \to 0^-} x^2 - 1 = -1$

$\lim_{x \to 0^+} ax + b = b$

$b = -1$

$\lim_{x \to 2^-} ax - 1 = 2a - 1$

$\lim_{x \to 2^+} \sqrt{4x+1} = 3$

$a = 2$

(d) $A = 81$

$B = 216$

$C = 216$

$D = 96$