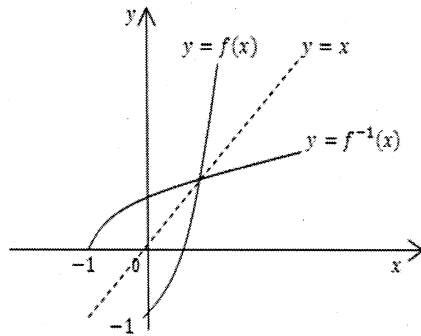


June 2011 Intake – P1

1. $x = 60^0, 150^0, 240^0, 330^0$
2. (i) $128 + 448kx + 672k^2x^2 + \dots$ (ii) $k = 4$
3. (i) 0.614 (ii) AG
4. (i) $(-1/2, -1)$ & $(1/2, 3)$ (ii) $y = 1 - \frac{1}{4}x$
5. (i) $(3x + 2)^2 + 3$ (ii) $x > 2/3$ & $x < -2$ (iii)
 $0 < \frac{1}{9x^2 + 12x + 7} \leq \frac{1}{3}$
6. (i) $n = 50,000r^{n-1}$ (ii) AG (iii) 2023 (iv)
760,000
7. (i) $4\mathbf{k} + 3\mathbf{j}$ (ii) $|\overrightarrow{OM}| = 5$ (ii) AG (iii) $\theta = 101^0$
8. (i) $fg(x) = 4x - 1, gf(x) = \sqrt{4x^2 - 1}$ (ii) A
 $= 0$ (iii) graph (iv) $x = \frac{1}{2}, \frac{\sqrt{2}}{2}$



9. (i) x – coordinate of $A = 2$ and of $B = 10/3$ (ii)
maximum point
(iii) $100/3$

June 2011 Intake – P6

Jan 2011 Intake – P1	Jan 2011 Intake – P6
<p>1. Curve lies above the x – axis.</p> <p>2. (i) $256 + 1024x + 1792x^2$ (ii) 448</p> <p>3. (i) $15 \sin 2\theta + \sin \theta - 2 = 0$ (ii) $\theta = 19.5, 160.5, 203.6, 336.4$</p> <p>4. (i) $n = 20$ (ii) can't be formed</p> <p>5. (i) AG (ii) Perimeter $= 27 - 9\sqrt{5} + 3\pi$</p> <p>6. (i) $p = 3$ (ii) $y = 3x - \frac{1}{2}x^2 + 3$</p> <p>7. (i) $\frac{2}{3}\mathbf{i} + \frac{1}{3}\mathbf{j} + \frac{2}{3}\mathbf{k}$ (ii) $\sqrt{21}$ (iii) $\theta = 27.3$</p> <p>8. (i) $y = -3x - 8$ (ii) 6π</p> <p>9. (i) $x + y = 10$ (ii) $D = (4.4, 5.6)$</p> <p>10. (i) $A = 4$ (ii) $f^{-1}(x) = 4 - \sqrt{x - 1}$ (iii)</p> <div data-bbox="327 922 742 1227" data-label="Figure"> <p>The figure shows a Cartesian coordinate system with a horizontal x-axis and a vertical y-axis. A dotted line representing the line of symmetry $y = x$ passes through the origin and is labeled 'Mirror $y = x$'. Two curves are plotted: $f(x)$ and $f^{-1}(x)$. The curve $f(x)$ is in the upper-left quadrant and passes through the point $(1, 4)$. The curve $f^{-1}(x)$ is in the lower-right quadrant and passes through the point $(4, 1)$. The two curves intersect at the point $(2, 2)$ on the line $y = x$.</p> </div> <p>11. (i) $(0, 0)$ minimum and $(4, 32)$ maximum (ii) $x < 0$ and $x > 4$ (iii) $y = 12x - 8$</p>	

June 2010 Intake – P1	June 2010 Intake – P6
<p>1. (i) $1+6x+12x^2+8x^3\dots$; (ii) 19</p> <p>2. (a) $x \leq 3$, $x \geq 5$ (b) $m = 3$</p> <p>3. (i) 38.0 (ii) 39.9</p> <p>4. (i) C(14,16) (ii) P(7,5)</p> <p>5. (a) Show; (ii) $x = \pm 15^\circ, \pm 75^\circ, \pm 105^\circ, \pm 165^\circ$</p> <p>6. (i) $-3 \leq f(x) \leq 15$; (ii) Not one to one</p> <p>(iii) $k=2$; (iv) $g^{-1}(x) = \sqrt{\frac{x+3}{2}} + 2$</p> <p>7. (i) $i+3j+8k$ (ii) 60°, (iii) 18.2</p> <p>8. (a) $\frac{n+2}{2}(-1+d(2m-1+n))$ (b) (8,4)</p> <p>9. (i) Show; (ii) Show; (iii) 3.77</p> <p>10. (i) (0,0) (4,2); (ii) $\frac{4}{3}$; (iii) $\frac{64\pi}{15}$</p>	

Jan 2010 Intake – P1	Jan 2010 Intake – P6
<p>1. $-1 < q < 2$</p> <p>2. (i) $1-12x+54x^2-100x^3\dots$; (ii) 0.24</p> <p>3. Prove. (ii) $39.2^\circ, 140.8^\circ, 219.2^\circ, 320.8^\circ$.</p> <p>4. (i) A(-4,3) B(6,8) (ii) Show</p> <p>5. $\frac{-16}{15\pi}$</p> <p>6. (i) 54.2°; (ii) $c = \frac{38}{5}$</p> <p>7. (a) $a = \frac{-3}{2}d$;</p> <p>(b) (i) $q = 2p$; (ii) 2</p> <p>8. (i) -20,12; (ii) $x = 6$;</p> <p>(iii) $-(x-4)^2 + 28$ (iv) Sketch</p> <p>9. (i) $r = \frac{200}{9}$; (ii) 99.8; (iii) 95.6</p> <p>10. (a) (i) $\frac{2}{3}(x-1)^{3/2} + c$</p> <p>(b) (i) $y = -2x + 5$ (ii) $\frac{11}{12}$</p>	

June 2009 Intake – P1	June 2009 Intake – P6
<p>1. $\frac{51}{175}$</p> <p>2. $\cos \theta = \frac{1}{3}$</p> <p>3. (a) 3; (b) 366</p> <p>4. (i) $r = 6$, $h = 12$;(ii) 678.58</p> <p>5. (i) $y = 11x - 9$; (ii) $y = -x + 5$; (iii) $(\frac{7}{6}, \frac{23}{6})$</p> <p>6. (i) 108; (ii) 1.85rad; (iii) 125.55</p> <p>7. (i) $68.2^\circ, 248.2^\circ$; (ii) $68.2^\circ \leq x \leq 248.2^\circ$</p> <p>8. (i) $2y - 3x + 8 = 0$; (ii) 10.8</p> <p>9. (i) $g(x) = \frac{x+1}{x-1}, x \neq 1$; (ii) $h^{-1}(x) = \sqrt{x+1}, x \geq 1$ (iii) Sketch</p> <p>10. (i) $(x+1)^2 \geq 0$; (ii) $x = 1$ (iii) $x \leq -3, x \geq 1$</p> <p>11. (a) (i) Show ; (ii) Show ; (b) (i) $y = \frac{b}{a}x$ (ii) Show</p>	

Jan 2012 Intake – P1	Jan 2012 Intake – P6