A2 Maths Test β (beta) version O

1 Differentiate $\sec^2 2x$ with respect to x:

2 Find the following integral by considering what has been differentiated: $\int \cos(5x+4)dx$

3 Find the exact value of $\log_3 \frac{1}{9}$

4 Find the following integral by considering what has been differentiated: $\int \sec^2 2x dx$

5. Find the equation of the normal to $y = \operatorname{cosec} x$ at the point $(\frac{\pi}{2}, 1)$

6. Show that $\frac{4x^3 - 6x^2 + 8x - 5}{2x+1}$ can be written in the form $Ax^2 + Bx + C + \frac{D}{2x+1}$ where A, B, C and D are constants to be found.

A2 Maths Test β (beta) version P

1 Differentiate $\sec^2 3x$ with respect to x:

2 Find the following integral by considering what has been differentiated: $\int \cos(3x+5)dx$

3 Find the exact value of $\log_4 \frac{1}{16}$

4 Find the following integral by considering what has been differentiated: $\int \sec^2 7x dx$

5. Find the equation of the tangent to $y = \sec x$ at the point $(\frac{\pi}{4}, \frac{\sqrt{2}}{2})$

6. Show that $\frac{4x^3 - 2x^2 + 8x - 1}{2x+1}$ can be written in the form $Ax^2 + Bx + C + \frac{D}{2x+1}$ where A, B, C and D are constants to be found.

A2 Maths Test β (beta) version Q

1 Differentiate $\tan^2 4x$ with respect to x:

2 Find the following integral by considering what has been differentiated: $\int \cos(7x+2)dx$

3 Find the exact value of $\log_5 \frac{1}{25}$

4 Find the following integral by considering what has been differentiated: $\int \operatorname{cosec}^2 7x dx$

5. Find the equation of the normal to $y = \sec x$ at the point $(2\pi, 1)$

6. Show that $\frac{5x^3 - 2x^2 + 6x - 2}{x-2}$ can be written in the form $Ax^2 + Bx + C + \frac{D}{x-2}$ where A, B, C and D are constants to be found.

A2 Maths Test β (beta) version R

1 Differentiate $\tan^2 9x$ with respect to x:

2 Find the following integral by considering what has been differentiated: $\int \sin(5x-3)\, dx$

3 Find the exact value of $\log_{10} \frac{1}{100}$

4 Find the following integral by considering what has been differentiated: $\int \operatorname{cosec} 7x \cot 7x \, dx$

5. Find the equation of the normal to $y = \sec x$ at the point $(0, 1)$

6. Show that $\frac{4x^3 - 6x^2 + x - 5}{2x+1}$ can be written in the form $Ax^2 + Bx + C + \frac{D}{2x+1}$ where A, B, C and D are constants to be found.

Answers version O

1) $4\sec^2 2\,x \tan 2x$
2) $\frac{1}{5}\sin(5x+4)$ + c
3) -2
4) $\frac{1}{2}\tan 2x$ + c

5) $x = \frac{\pi}{2}$
6) $2x^2 - 4x + 6 + \frac{-11}{2x+1}$

Answers version P

1) $6\sec^2 3\,x \tan 3x$
2) $\frac{1}{3}\sin(3x+5)$ + c
3) -2
4) $\frac{1}{7}\tan 7x$ + c
5) $y - \frac{\sqrt{2}}{2} = \sqrt{2}(x - \frac{\pi}{4})$

6) $2x^2 - 2x + 5 + \frac{-6}{2x+1}$

Answers version Q

1) $8 \tan 4x \sec^2 4x$
2) $\frac{1}{7}\sin(7x+2)$ + c
3) -2
4) $-\frac{1}{7}cot7x + c$
5) $x = 2\pi$
6) $5x^2 + 8x + 22 + \frac{42}{x-2}$

Answers version R

1) $18 \tan 9x \sec^2 9x$
2) $-\frac{1}{5}\cos(5x-3)$ + c
3) -2
4) $-\frac{1}{7}cosec7x + c$
5) $x = 0$
6) $2x^2 - 4x + \frac{5}{2} + \frac{-15}{2(2x+1)}$