Max time: 3m 30s Champion: 1m 30s.

Question Set 1	Date:							
	Time taken:							
1.	$\sin 30° = \ldots$, $\sin 45° = \ldots$, $\sin 60° = \ldots$							
2.	$\ln 1 = \ldots$							
3.	Simplify $e^{2\ln x}$							
4.	Symmetry properties for sin and cos (in degrees)							
5.	$\frac{d}{dx} 2^x = \ldots$							
6.	Nth term of a geometric sequence							
7.	Write $\log_a b = c$ in index form.							
8.	$\cos 30° = \ldots$, $\cos 45° = \ldots$, $\cos 60° = \ldots$							
9.	$\ln e \equiv \ldots$							
10.	Periodic properties for sin, cos and tan (in degrees)							

Question Set 2	Date:							
	Time taken:							
1.	Periodic properties for sin, cos and tan (in degrees)							
2.	$\ln e \equiv \ldots$							
3.	Write $\log_w r = p$ in index form.							
4.	Symmetry properties for sin and cos (in degrees)							
5.	$\frac{d}{dx} 5^x = \ldots$							
6.	$\ln 1 = \ldots$							
7.	Nth term of a geometric sequence							
8.	$\sin 45° = \ldots$, $\cos 30° = \ldots$, $\sin 60° = \ldots$							
9.	Simplify $e^{3\ln x}$							
10.	$\cos 60° = \ldots$, $\sin 30° = \ldots$, $\cos 45° = \ldots$							

Solutions

	Question (Set 1)	Solution
1.	$\sin 30° = \ldots$, $\sin 45° = \ldots$, $\sin 60° = \ldots$	$\sin 30° = \frac{1}{2}$, $\sin 45° = \frac{\sqrt{2}}{2}$ (or $\frac{1}{\sqrt{2}}$), $\sin 60° = \frac{\sqrt{3}}{2}$
2.	$\ln 1 = \ldots$	$\ln 1 = 0$
3.	Simplify $e^{2\ln x}$	$e^{2\ln x} = e^{\ln x^2} = x^2$
4.	Symmetry properties for sin and cos (in degrees)	$\sin x = \sin(180° - x)$ $\cos x = \cos(360° - x)$ (alternative: $\cos x = \cos(-x)$)
5.	$\frac{d}{dx} 2^x = \ldots$	$\frac{d}{dx} 2^x = \ln 2 \times 2^x$
6.	Nth term of a geometric sequence	$u_n = ar^{n-1}$
7.	Write $\log_a b = c$ in index form.	$a^c = b$
8.	$\cos 30° = \ldots$, $\cos 45° = \ldots$, $\cos 60° = \ldots$	$\cos 30° = \frac{\sqrt{3}}{2}$, $\cos 45° = \frac{\sqrt{2}}{2}$ (or $\frac{1}{\sqrt{2}}$), $\cos 60° = \frac{1}{2}$
9.	$\ln e = \ldots$	$\ln e = 1$
10.	Periodic properties for sin, cos and tan (in degrees)	$\sin x = \sin(x \pm 360°)$ $\cos x = \cos(x \pm 360°)$ $\tan x = \tan(x \pm 180°)$

	Question (Set 2)	Solution
1.	Periodic properties for sin, cos and tan (in degrees)	$\sin x = \sin(x \pm 360°)$ $\cos x = \cos(x \pm 360°)$ $\tan x = \tan(x \pm 180°)$
2.	$\ln e \equiv \ldots$	$\ln e = 1$
3.	Write $\log_w r = p$ in index form.	$w^p = r$
4.	Symmetry properties for sin and cos (in degrees)	$\sin x = \sin(180° - x)$ $\cos x = \cos(360° - x)$ (alternative: $\cos x = \cos(-x)$)
5.	$\frac{d}{dx} 5^x = \ldots$	$\frac{d}{dx} 5^x = \ln 5 \times 5^x$
6.	$\ln 1 = \ldots$	$\ln 1 = 0$
7.	Nth term of a geometric sequence	$u_n = ar^{n-1}$
8.	$\sin 45° = \ldots$, $\cos 30° = \ldots$, $\sin 60° = \ldots$	$\sin 45° = \frac{\sqrt{2}}{2}$ (or $\frac{1}{\sqrt{2}}$), $\cos 30° = \frac{\sqrt{3}}{2}$, $\sin 60° = \frac{\sqrt{3}}{2}$
9.	Simplify $e^{3\ln x}$	$e^{3\ln x} = e^{\ln x^3} = x^3$
10.	$\cos 60° = \ldots$, $\sin 30° = \ldots$, $\cos 45° = \ldots$	$\cos 60° = \frac{1}{2}$, $\sin 30° = \frac{1}{2}$, $\cos 45° = \frac{\sqrt{2}}{2}$ (or $\frac{1}{\sqrt{2}}$)