Reference

Cosine Table:

Cos	Sin	Decimal	Fraction
cos(0°)	sin(90°)	1.0	2/2
cos(30°)	sin(60°)	0.866	√3/2
cos(45°)	sin(45°)	0.707	√2/2
cos(60°)	sin(30°)	0.5	1/2
cos(90°)	sin(0°)	0.0	0/2
cos(120°)	sin(-30°)	-0.5	-1/2
cos(135°)	sin(-45°)	-0.707	-√2/2
cos(150°)	sin(-60°)	-0.866	-√3/2

Homogeneous transformation matrices

Scaling by (s_x, s_y, s_z) :

 $[s_x, 0, 0, 0]$

 $0, s_y, 0, 0$

 $0, 0, s_z, 0$

0, 0, 0, 1]

Translation by (t_x, t_y, t_z) :

 $\begin{bmatrix} 1, 0, 0, t_x \end{bmatrix}$

0, 1, 0, t_y

0, 0, 1, t_z

0, 0, 0, 1]

Rotation α around the X axis:

[1, 0, 0,

0, $cos(\alpha)$, $-sin(\alpha)$, 0

0

0, $sin(\alpha)$, $cos(\alpha)$, 6

0, 0, 0, 1

Rotation β around the Y axis:

[$cos(\beta)$, 0, $sin(\beta)$, 0

0, 1, 0, 0

 $-\sin(\beta)$, 0, $\cos(\beta)$, 0

0, 0, 1]

Rotation γ around the Z axis:

[$cos(\gamma)$, $-sin(\gamma)$, 0, 0

 $sin(\gamma)$, $cos(\gamma)$, 0, 0

0, 0, 1, 0

0, 0, 0, 1]

Reference (Continued)

Euler Angle components correspond to the following axes of rotation:

Quaternion rotation angle: $\theta = 2*acos(q_w)$

Quaternion normalization (component-wise):

$$|q| = \frac{q}{\sqrt{q_x^2 + q_y^2 + q_z^2 + q_w^2}}$$

Linear interpolation between points with values A and B given amount α :

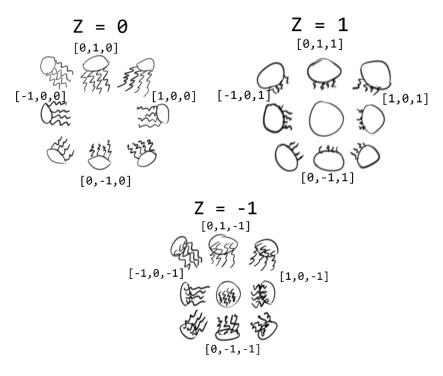
$$C = \alpha * A + (1 - \alpha) * B$$

Linear interpolation at point x between points at x_1 and x_2 with values y_1 and y_2 :

$$y = \frac{y_2(x - x_1) + y_1(x_2 - x)}{x_2 - x_1}$$

GLSL swizzling supports the following (equivalently-ordered) letters:

Jellyfish References



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