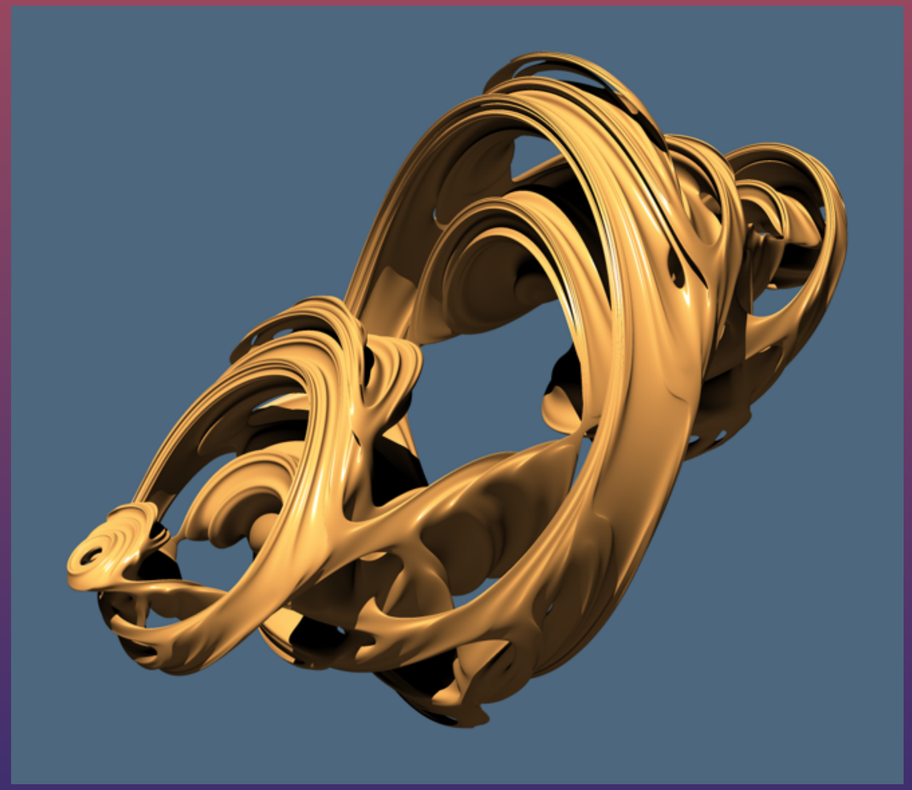
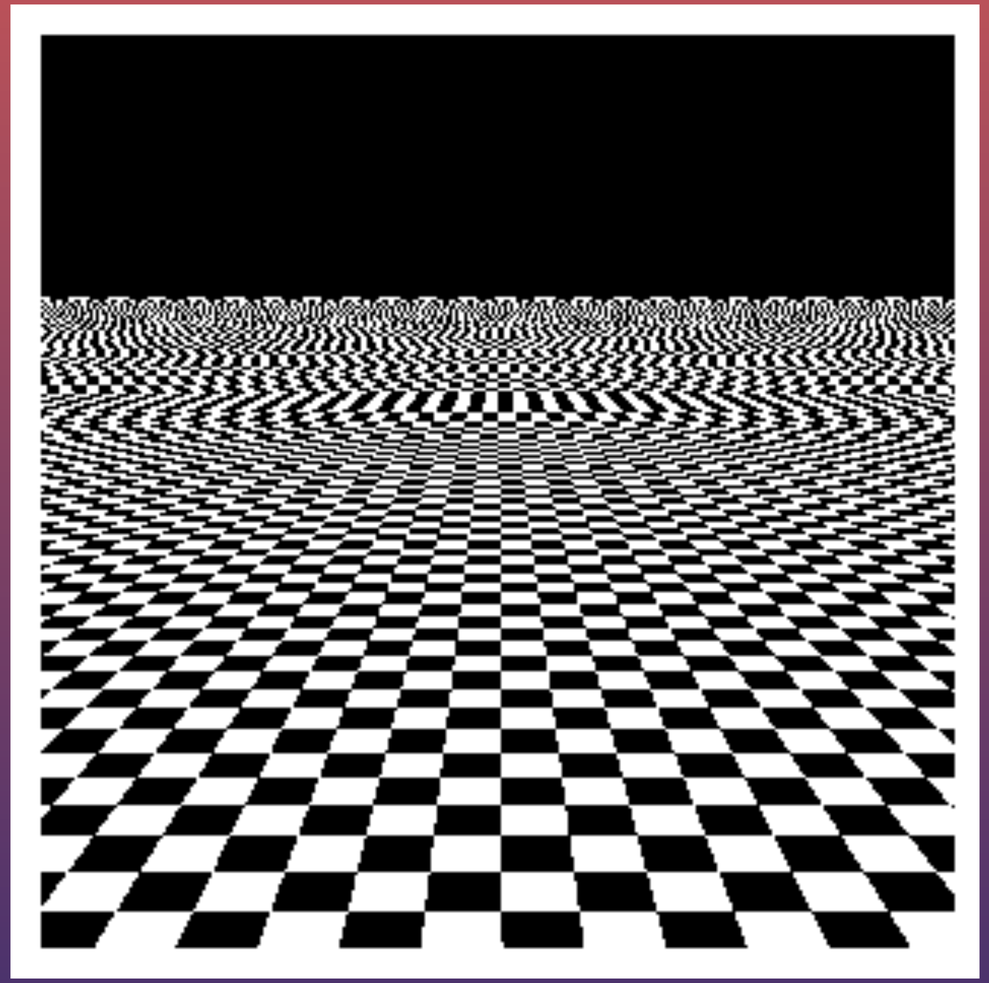
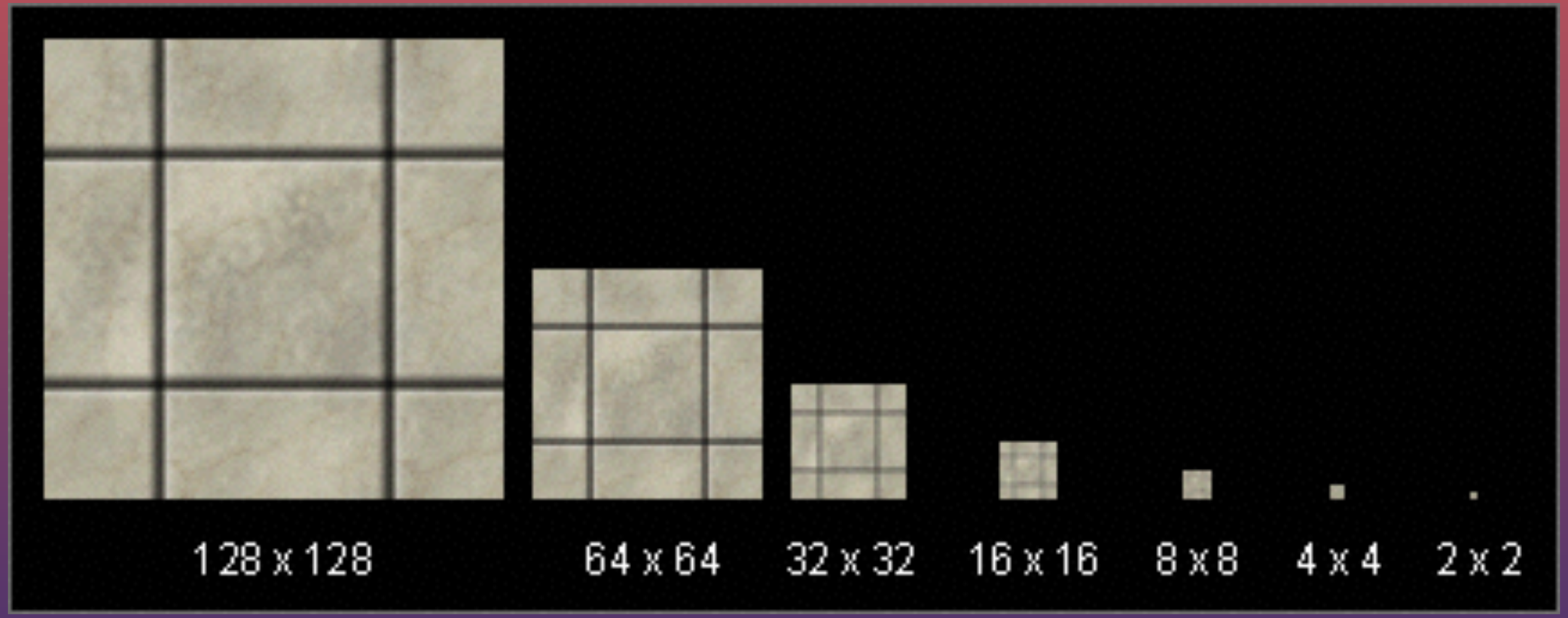
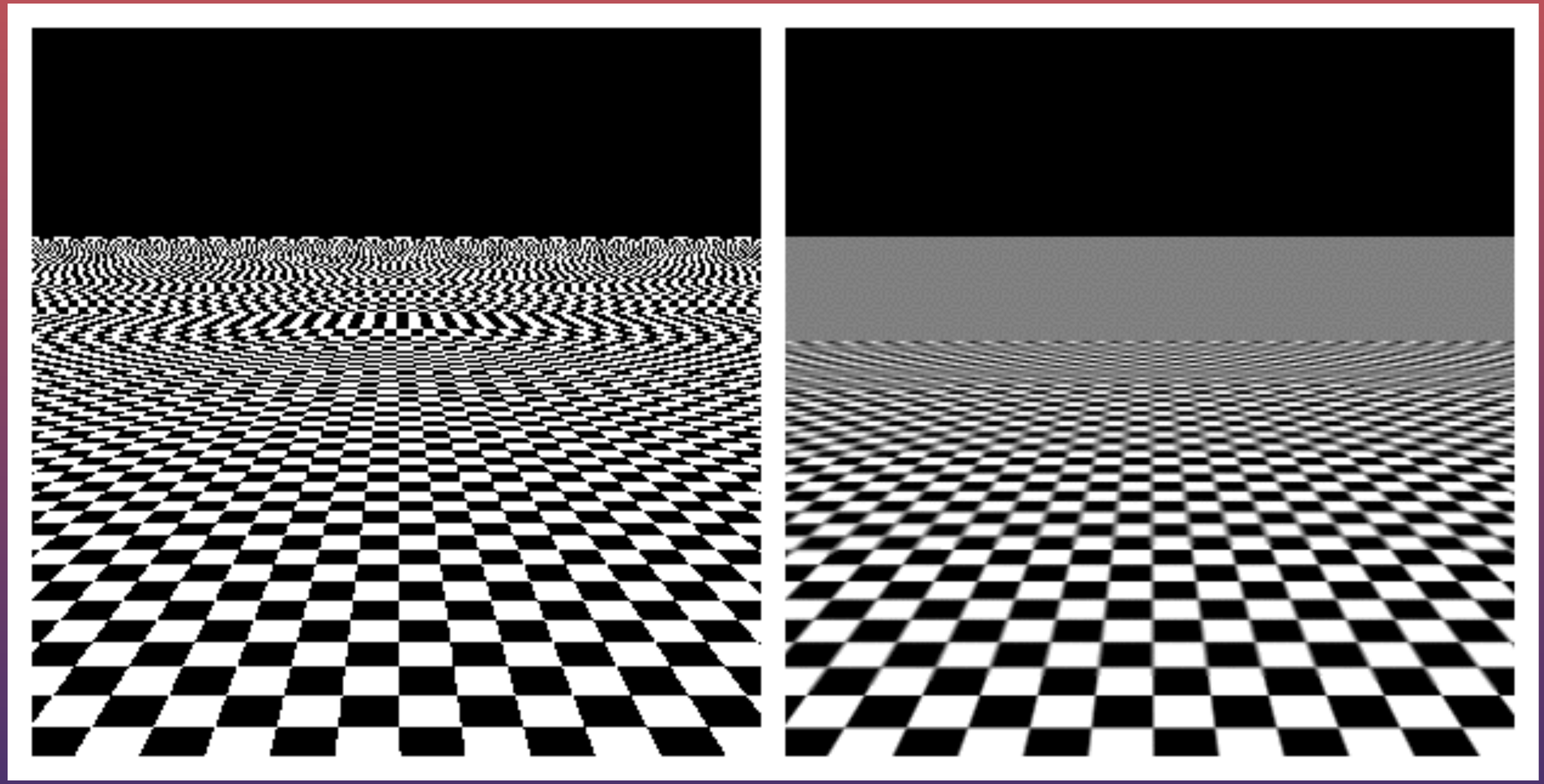
3D / Windowing





Mipmaps


128 x 128
64 x 64
32 x 32
16 x 16
8 x 8
4 x 4
2 x 2



```
void glTexParameteri (GLenum target, GLenum pname,
GLint param);
```

Sets a texture parameter of the specified texture target.

Set **GL_GENERATE_MIPMAP** parameter to **GL_TRUE** to generate mipmaps automatically.

Set **GL_TEXTURE_MIN_FILTER** to **GL_LINEAR_MIPMAP_LINEAR** or **GL_NEAREST_MIPMAP_NEAREST** to set the minification filter to use mipmaps.

```
glTexParameteri(GL_TEXTURE_2D, GL_GENERATE_MIPMAP,GL_TRUE);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MIN_FILTER, GL_LINEAR_MIPMAP_LINEAR);
```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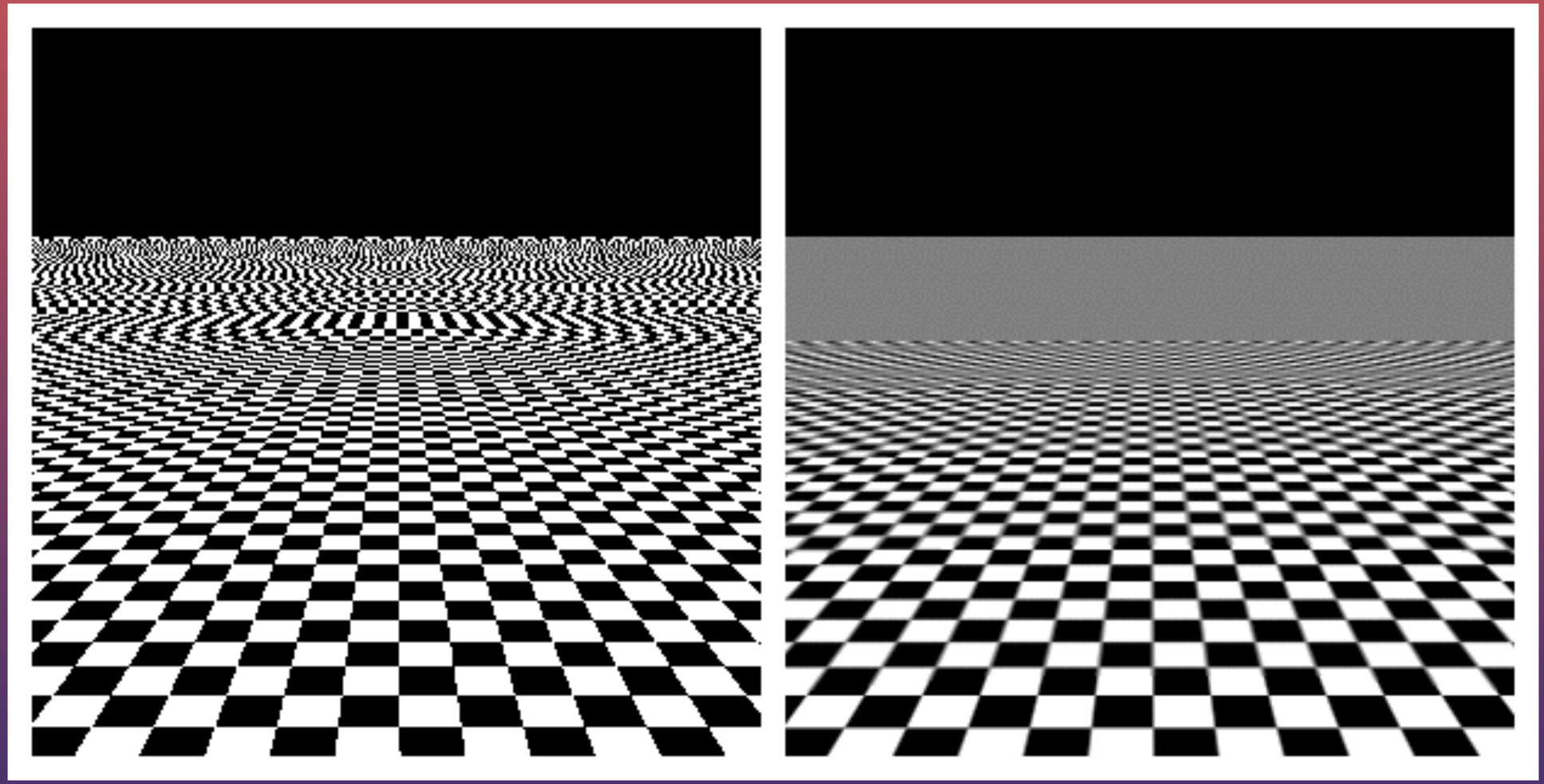
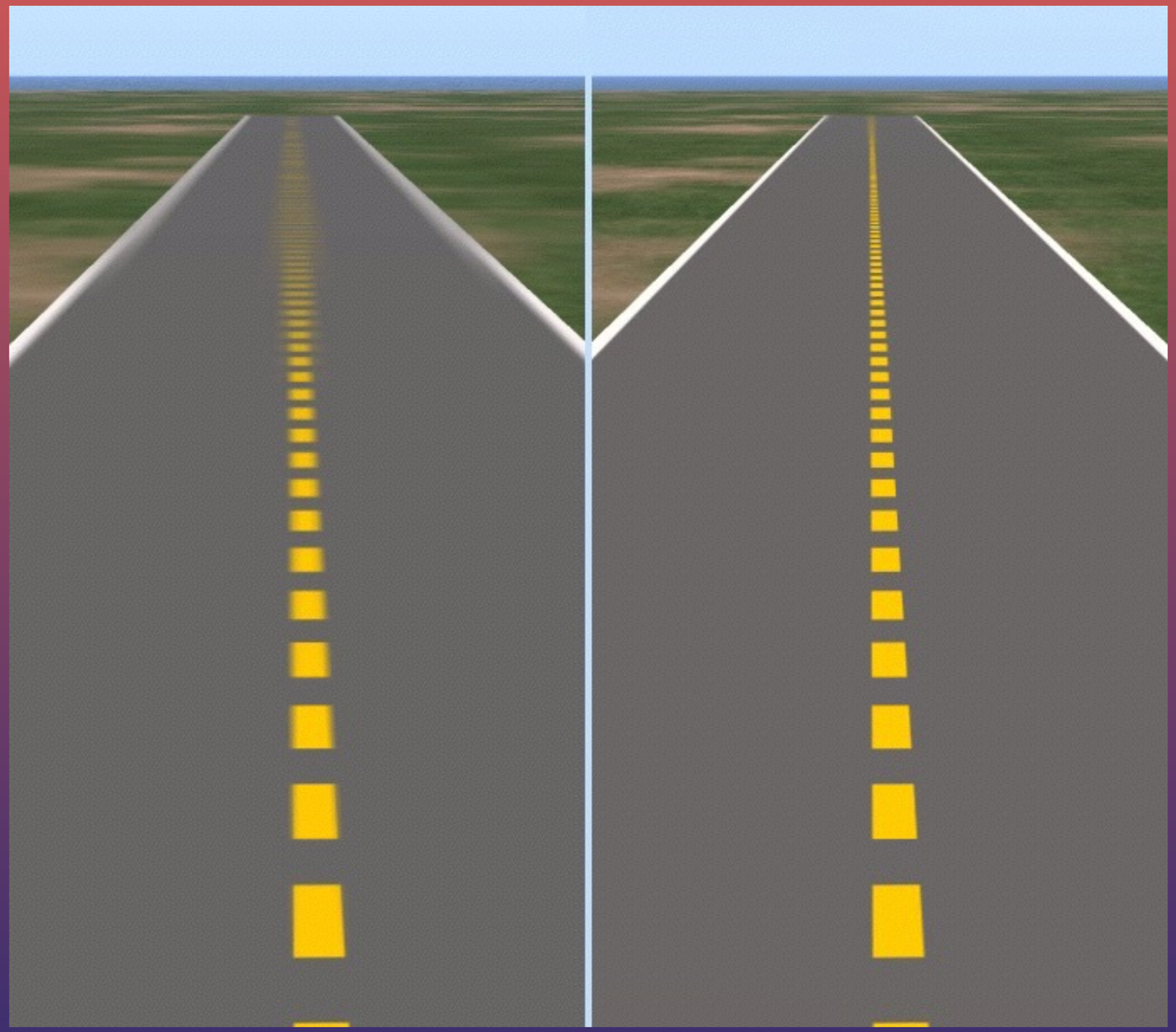
Anisotropic filtering





```
void glTexParameterf (GLenum target, GLenum pname,
GLfloat param);
```

Sets a floating point texture parameter of the specified texture target.

Set **GL_TEXTURE_MAX_ANISOTROPY_EXT** parameter to set the anisotropic filtering amount. Must be a power of 2 up to 16 (0 (off), 2, 4, 8 or 16).

```
glTexParameterf(GL_TEXTURE_2D, GL_TEXTURE_MAX_ANISOTROPY_EXT, 16.0f);
```

Resolutions and fullscreen.

Fullscreen

```
int SDL_SetWindowFullscreen(SDL_Window *window,
Uint32 flags);
```

Sets the specified SDL window to fullscreen or windowed mode. Pass flags as:

SDL_WINDOW_FULLSCREEN or SDL_WINDOW_FULLSCREEN_DESKTOP for fullscreen mode or **0** for windowed mode.

```
SDL_SetWindowFullscreen(displayWindow, SDL_WINDOW_FULLSCREEN); // set
fullscreen

SDL_SetWindowFullscreen(displayWindow, 0); // set windowed mode
```

Enumerating video modes.

`int SDL_GetNumDisplayModes(int displayIndex);`

Returns the number of display modes for given display index (monitor).

```
SDL_GetNumDisplayModes(0); // get number of display modes for main monitor
```

```
int SDL_GetDisplayMode(int displayIndex, int modeIndex, SDL_DisplayMode * mode);
```

Gets the details about a specified mode index and stores it in the SDL_DisplayMode struct pointed to by **mode.**

Use this in conjunction with **SDL_GetNumDisplayModes** to list available resolutions.

```
    for(int i=0; i < SDL_GetNumDisplayModes(0); i++) {
        SDL_DisplayMode mode;
        SDL_GetDisplayMode(0, i, &mode);
        cout << "AVAILABLE RESOLUTION:" << mode.w << "x" << mode.h << endl;
    }
```

Setting a video mode.

In windowed mode.

```
void SDL_SetWindowSize(SDL_Window * window, int w, int h);
```

Sets the window size for a window specified by the SDL_Window pointer.

```
SDL_SetWindowSize(displayWindow, 800, 600); // resize window to 800 x 600
```

In fullscreen

```
int SDL_SetWindowDisplayMode(SDL_Window * window, const SDL_DisplayMode *
mode);
```

Sets the display mode to the mode specified by the **mode** pointer. On some platforms, you need to exit and re-enter fullscreen for the new mode to take effect.

```
SDL_DisplayMode mode;
SDL_GetDisplayMode(0, selectedVideoMode, &mode);

SDL_SetWindowDisplayMode(displayWindow, &mode);
SDL_SetWindowFullscreen(displayWindow, 0);
SDL_SetWindowFullscreen(displayWindow, SDL_WINDOW_FULLSCREEN);
```

Don’t forget to set your viewport and aspect ratios to the new resolution!

```
float aspect = (float)currentResolutionX /(float)currentResolutionY;
setPerspective(65.0f, aspect, 0.1f, 200.0f);


glViewport(0,0,currentResolutionX, currentResolutionY);
glOrtho(-aspect, aspect, -1.0f, 1.0f, -1.0f, 1.0f);
```

Hiding the cursor.

```
int SDL_ShowCursor(int toggle);
```

Show or hide the mouse pointer. Pass **0** to hide and **1** to show.

```
SDL_ShowCursor(0); // hide the pointer
SDL_ShowCursor(1); // show the pointer
```