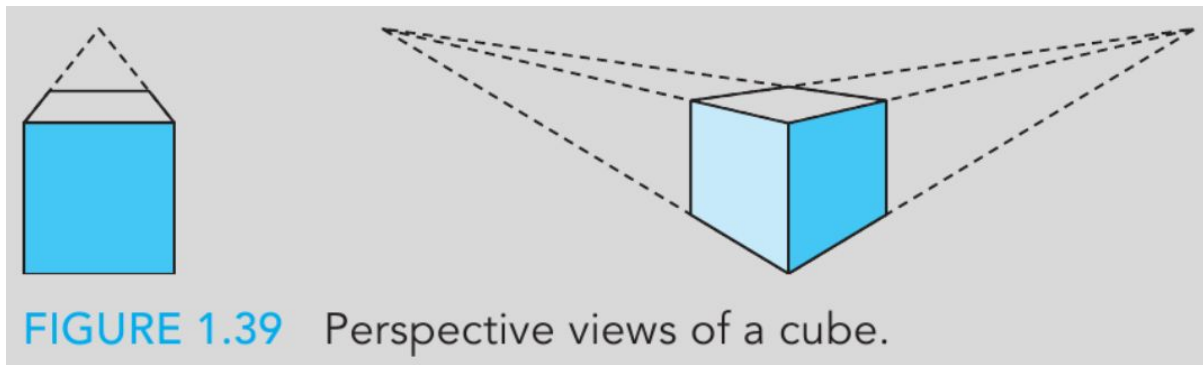


Tutorial Questions Week 2

1.7 Consider the perspective views of the cube shown in Figure 1.39. The one on the left is called a one-point perspective because parallel lines in one direction of the cube - along the sides of the top - converge to a vanishing point in the image. In contrast, the image on the right is a two-point perspective. Characterize the particular relationship between the viewer, or a simple camera, and the cube that determines why one is a two-point perspective and the other a one-point perspective.



Answer:

One-point: if the face is parallel with the camera (right in front of the viewer), you get one vanishing point.

Two-point: You get two vanishing points if an edge is parallel with the camera.

1.8 The memory in a frame buffer must be fast enough to allow the display to be refreshed at a rate sufficiently high to avoid flicker. A typical workstation display can have a resolution of 1280 X 1024 pixels. If it is refreshed 72 times per second, how fast must the memory be? That is, how much time can we take to read one pixel from memory? What is this number for a 480 X 640 display that operates at 60 Hz but is interlaced?

Answer:

The memory must be able to refresh $1280 \times 1024 \times 72 = 94,371,840$ pixels per second.

$72 / 94,371,840 = 0.000\,000\,76$ seconds to read 1 pixel.

$480 \times 640 \times 60 / 2 = 9,216,000$ pixels per second.

$30 / 9,216,000 = 0.000\,00326$ seconds to read 1 pixel.

1.9 Movies are generally produced on 35 mm film that has a resolution of approximately 2000 X 3000 pixels. What implication does this resolution have for producing animated images for television as compared with film?

Answer:

Since it's a higher resolution it'll take a longer time to render because there's a higher number of pixels and therefore more information to process.

1.10 Answer the following questions:

- i. What is the resolution and refresh rate of your screen/display?

Answer:

1920x1080, 60 Hz

- ii. Which browsers support WebGL? List four of the major ones.

Answer:

Most browsers, for example: Google Chrome, Firefox, Safari, Internet Explorer.

- iii. Is GLSL program platform dependent?

Answer:

GLSL is an open shader language that is platform independent.

- iv. Are GLSL shaders stand-alone applications? That is, can they execute on their own like a stand-alone C application?

Answer:

No, it's designed to be run and compiled by OpenGL.

- v. Where do you compile and link your GLSL programs?

Answer:

WebGL compile and executes your GLSL programs.

- vi. When a JS function is called?

Answer:

A Javascript function can be called on different times. For example when you open a webpage or when you click a button as an event. "It's called when it's called".