Section 1 (Computing the Inverse Transform Matrix):

1. The inverse of a translation undoes the original shift. A translation is inverted by a translation by . Thus, the inverse translation matrix is:
2. The inverse of a rotation matrix corresponds to rotating by the opposite angle. Thus, the inverse of a rotation by is a rotation by . So,
3. The inverse of a reflection matrix is the reflection matrix itself because reflecting an object twice across the same line returns it to its original position.
4. Inverse of x-shear: . Inverse of y-shear: .

Section 2 (Implementing Image Transformations)

1. Scale:
   1. Function declaration: 

A plant growing next to train tracks

AI-generated content may be incorrect. A room with a piano and a rug

AI-generated content may be incorrect. A close up of a cartoon face

AI-generated content may be incorrect.

1. Reflect:
   1. Function declaration: 

A close-up of a vine

AI-generated content may be incorrect.  A drawing of a face

AI-generated content may be incorrect.

1. Rotate:
   1. Function declaration: 

A close-up of a train track

AI-generated content may be incorrect. A room with a table and chairs

AI-generated content may be incorrect. A cartoon face with white lines

AI-generated content may be incorrect.

1. Shear:
   1. Function declaration: 

A close-up of a plant next to a train track

AI-generated content may be incorrect. A room with a rug and a piano

AI-generated content may be incorrect. A drawing of a face

AI-generated content may be incorrect.

1. Translate:
   1. Function declaration: 

A close-up of a plant on a train track

AI-generated content may be incorrect. A room with a table and chairs

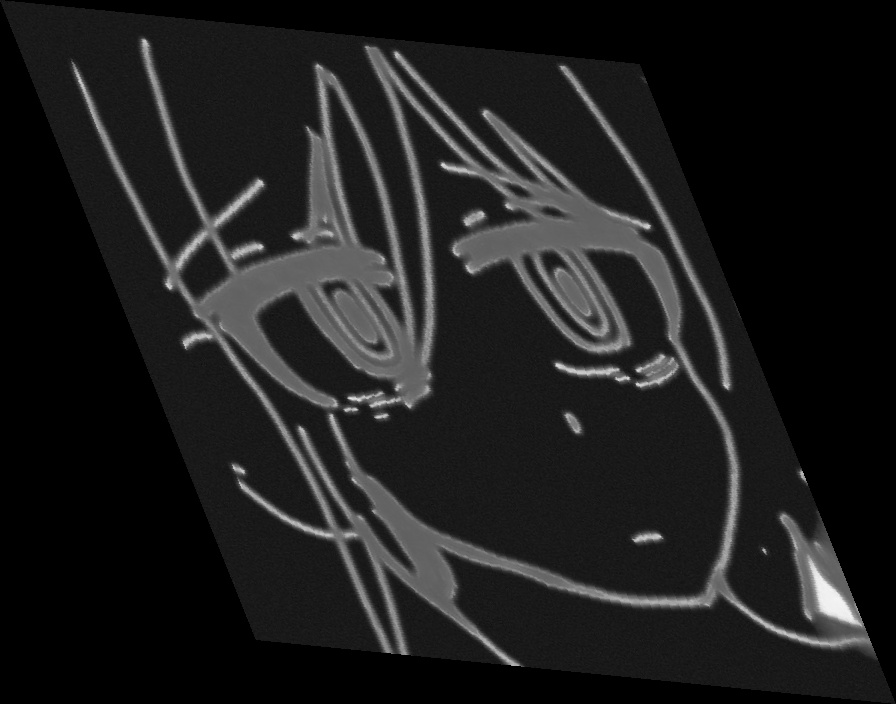
AI-generated content may be incorrect. A cartoon face with white lines

AI-generated content may be incorrect.

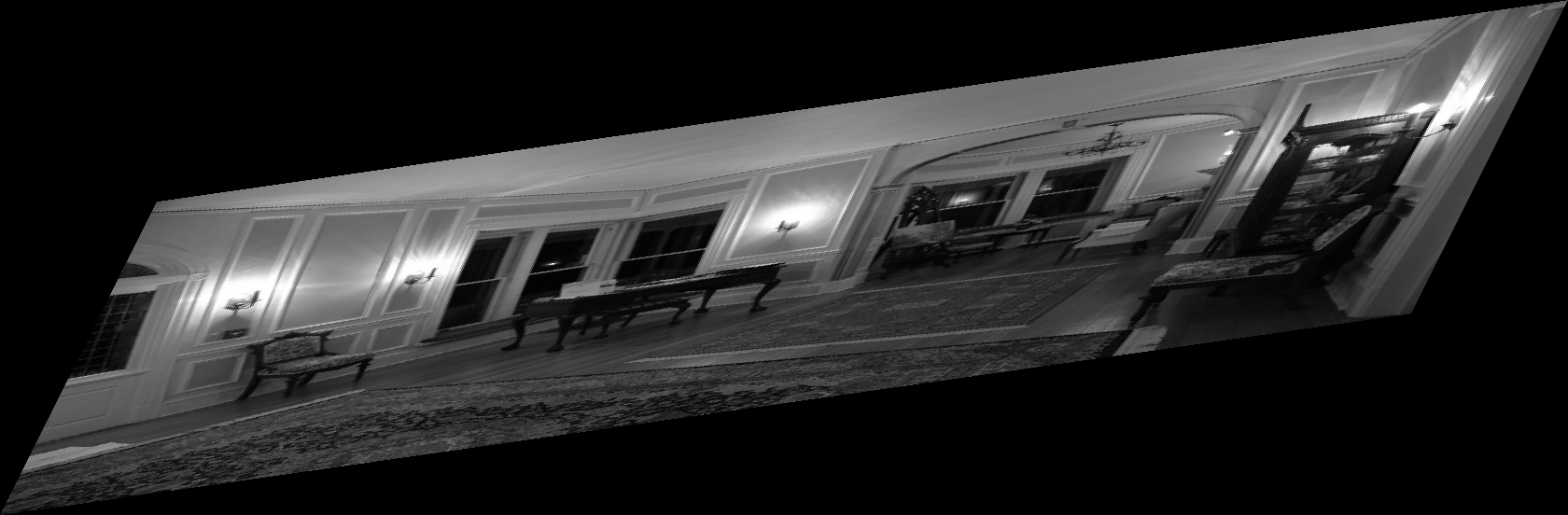
1. Affine:
   1. Function declaration: 

A close-up of a plant next to a train track

AI-generated content may be incorrect. A room with a mirror and a rug

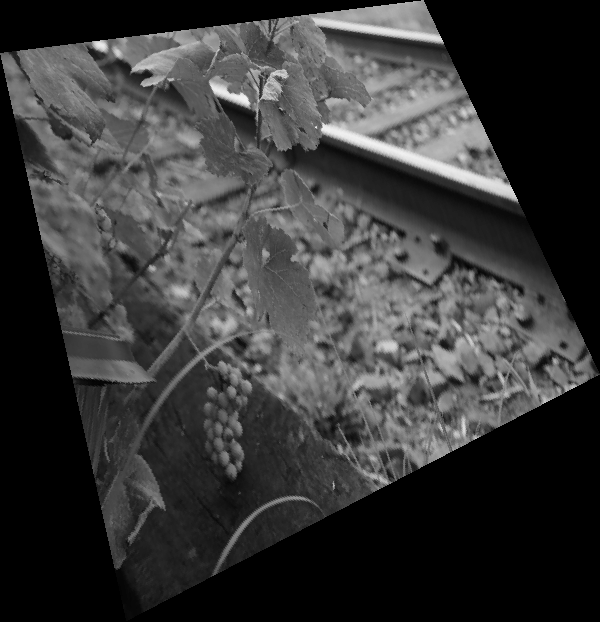
AI-generated content may be incorrect. 

A close-up of a planet

AI-generated content may be incorrect.  A close up of a cartoon face

AI-generated content may be incorrect.

1. Homographies:
   1. Function declaration: 

 A room with a piano and chairs

AI-generated content may be incorrect. A close-up of a face

AI-generated content may be incorrect.

A close-up of a plant

AI-generated content may be incorrect. A room with a mirror and a piano

AI-generated content may be incorrect. A cartoon face with white lines

AI-generated content may be incorrect.