Engineering 25
Fall Semester 2018
Midterm Exam

120 minutes
Closed Book Exam

Problem 1   _____ /25

Problem 2   _____ /25
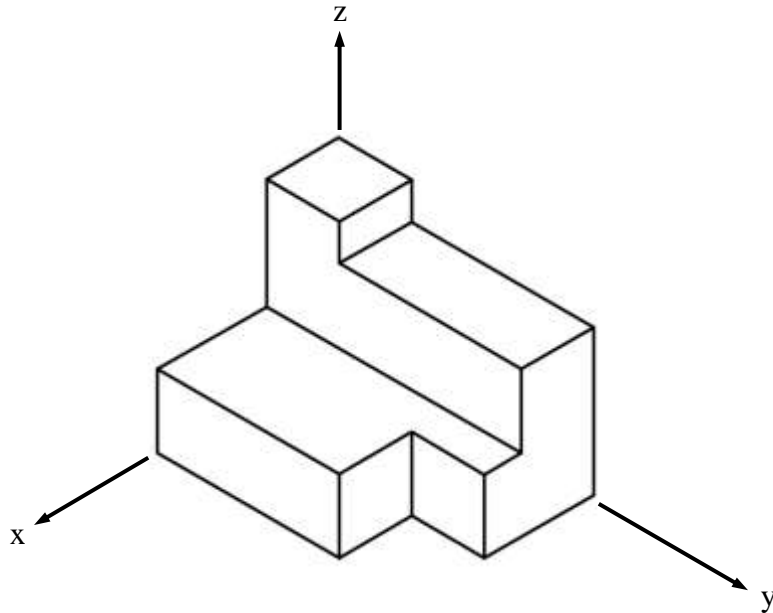
Problem 3   _____ /25

Problem 4   _____ /25

Total Score   _____ /100

Problem #1 25 points

The pictorial of an object is shown in the figure below.

Starting with the original orientation, sketch the object after it is rotated around the z-axis by negative 90°, and then about the x-axis by negative 90°. Do not need to show hidden lines.

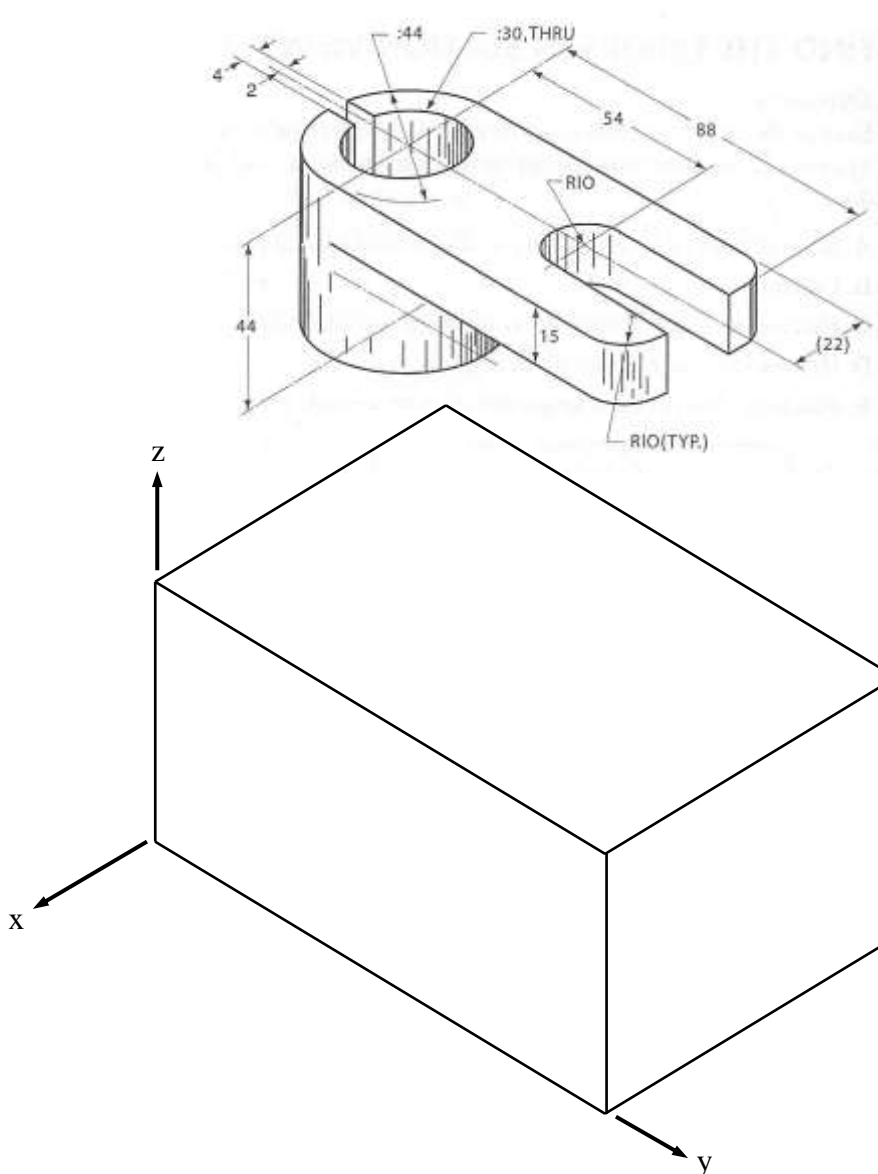For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.
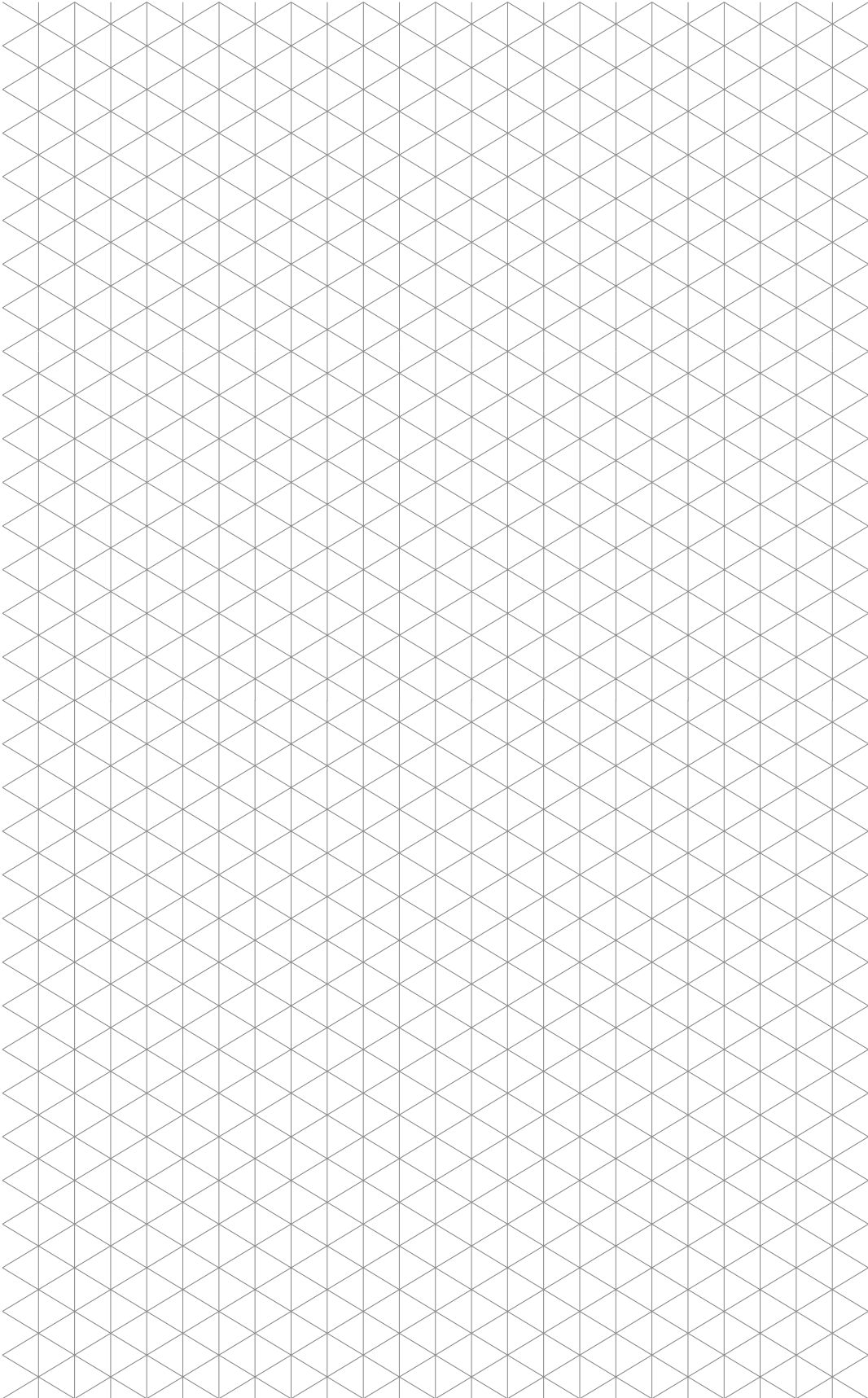
For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.
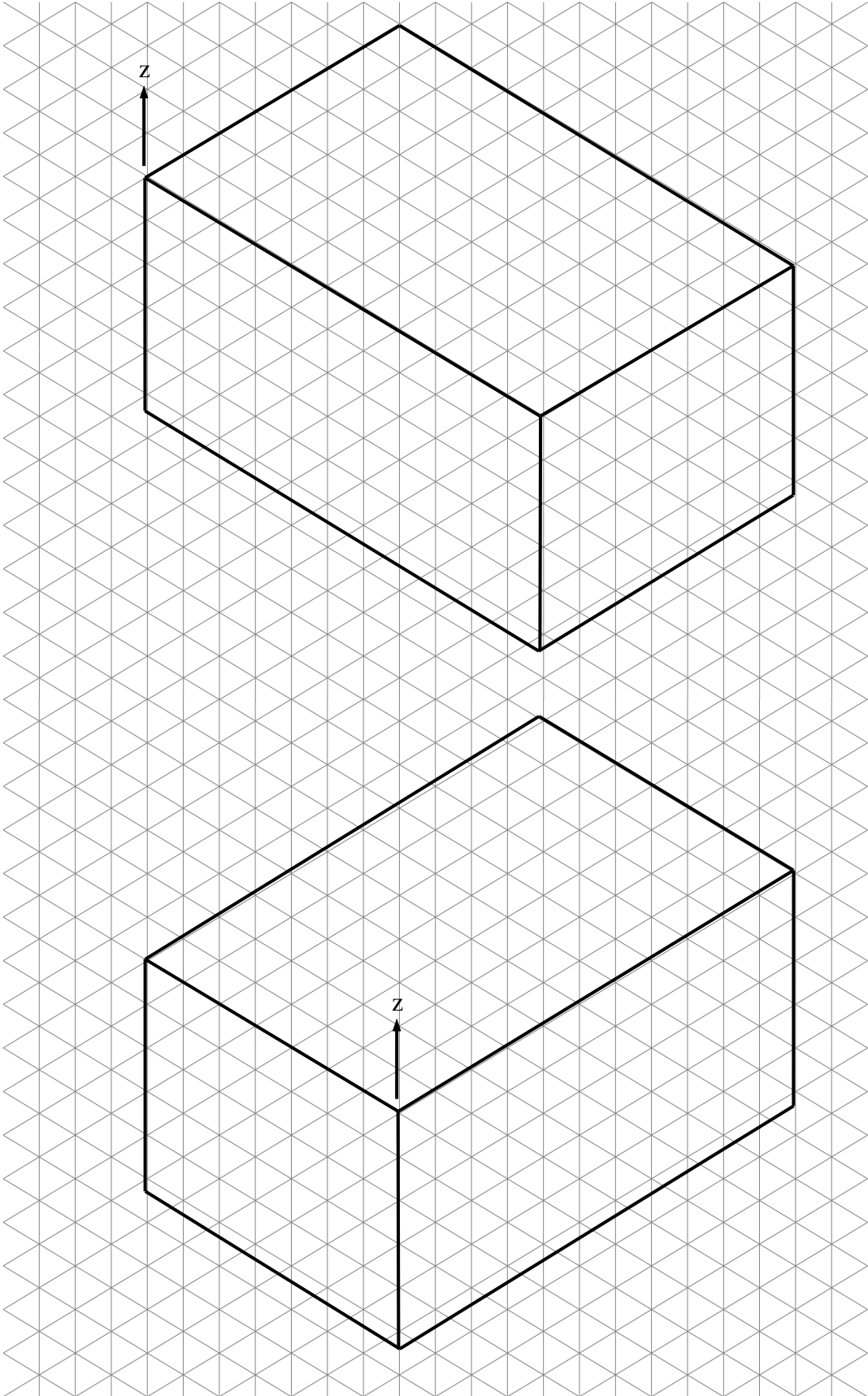
Problem #2 25 points

The figure below shows a pictorial drawing of a hinge spacer. The pictorial shows the front, top and right sides of the part. It is desired to make this object using a casting process, so a mold cavity must be made by performing a Boolean subtraction of the object from the rectangular block shown, such that the top of the part is co-planar with the top of the block.

a) Sketch an isometric view of the mold that shows the cavity created by subtracting the part from the block. The position of the block is already started on the isometric sketching grid. Do not show the hidden lines.

b) Sketch another isometric view of the mold after it has been rotated by positive 90° about the z-axis from the position in part (a). The position of the block is already started on the isometric sketching grid. Do not show the hidden lines.

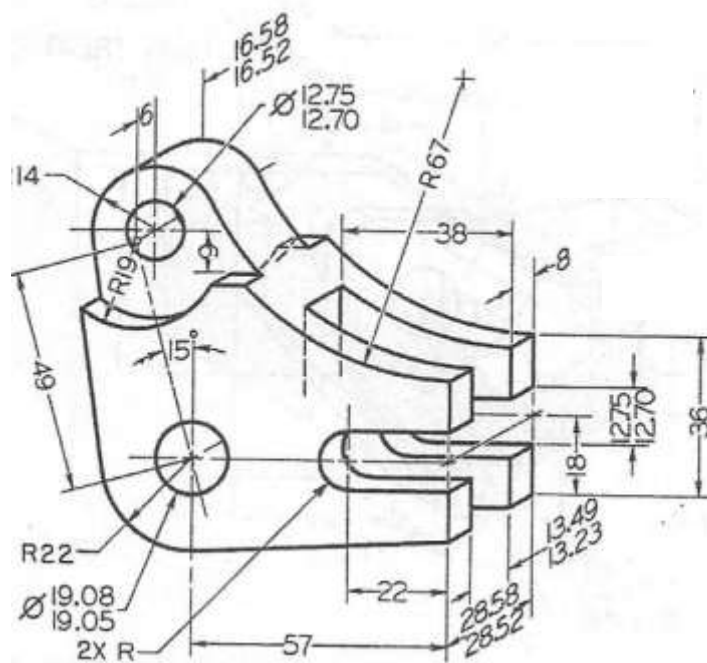For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.

z

z

For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.

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Problem #3 25 points

The figure below shows a pictorial drawing of a toggle lever. The pictorial shows the front, top and right sides of the part. Sketch a multi-view drawing of the bracket showing the front, top, and right side views, with sufficient hidden lines to fully define the geometry of every feature. Center-lines and center-marks must be used when needed. Exact sizes are not required, but reasonably accurate proportions are expected. You do not need to show the dimensions.
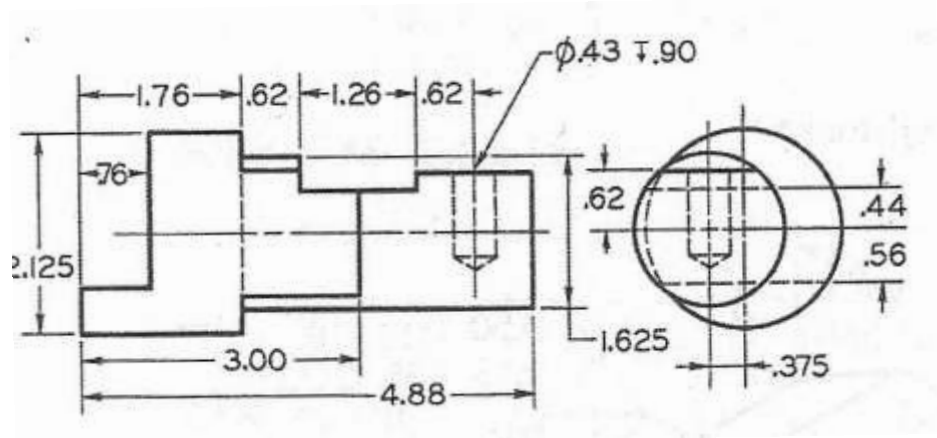
Use 1st angle projection.

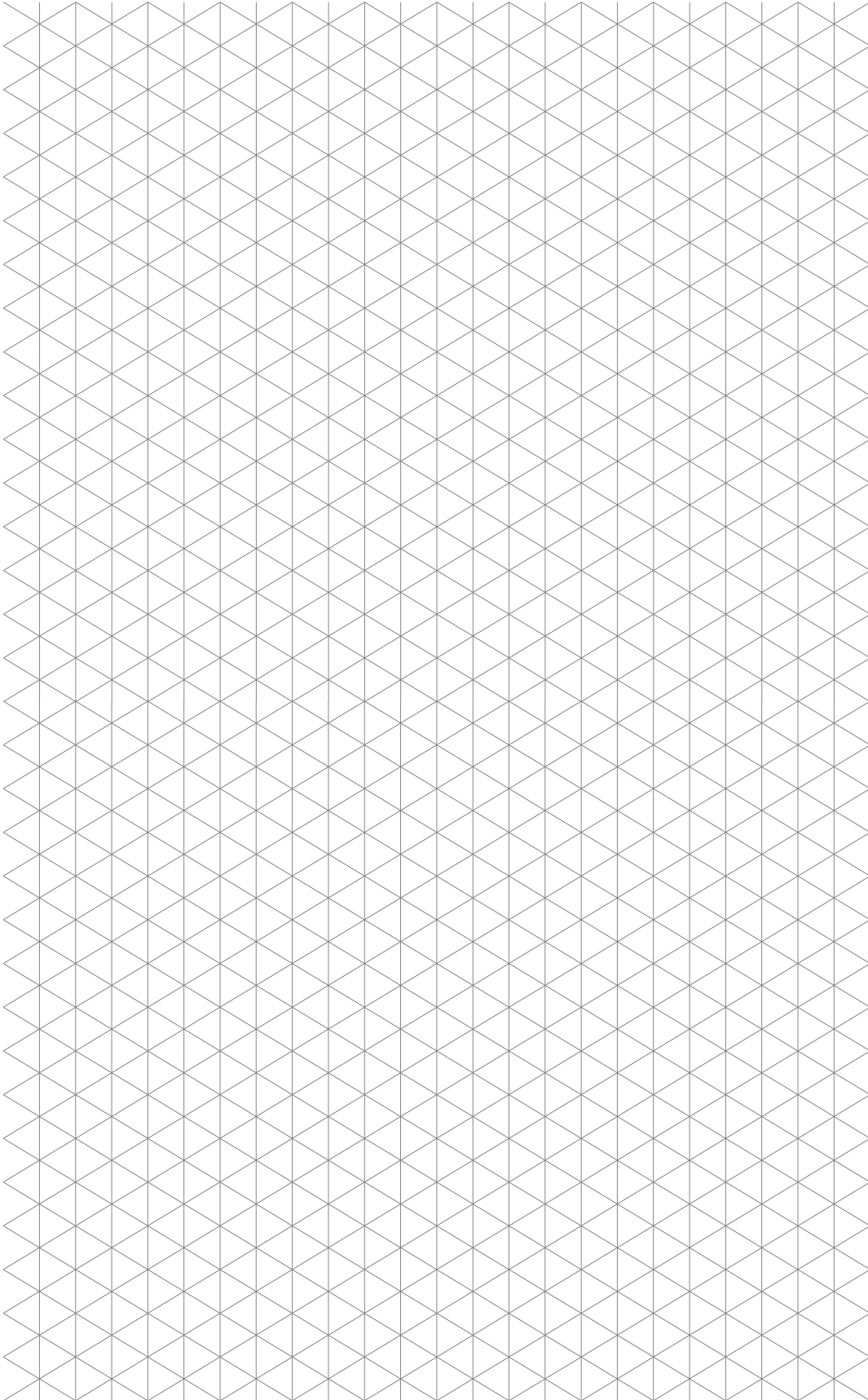For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.

For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.

Problem #4 25 points

The figure below shows the front and right side views of a 3-dimensional object **in 3ʳᵈ angle projection**.

a. On the figure below, add the top and left side views. There is no need to add dimensions to the views; however, hidden lines, center-lines and center-marks must be included.

b. Create an isometric pictorial that shows the front, top, and right sides of the object. You do not need to show the dimensions, hidden lines, center lines, or center marks.

For all pictorial sketches on this exam, shading of surfaces is recommended, but not required.

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