

Questions for Lesson #1A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. The print produced with the aid of ammonia vapor and having dark lines on a white background is called a _____ print.

2. Name the two main advantages of the xerographic print process.

3. List the five different lines which may appear on a print and draw an example of each.

Line Type	Example

4. Contrast in lines comes from the darkness of the line.

- A. True
B. False

5. What is the purpose of the title block?

Refer to Drawing 1 in the Appendix and answer the following questions.

6. What type line is the line lettered (C) in the front view?

7. List the letters of all hidden lines.

8. What kind of lines are (E) and (G)?

9. What is the name used to describe lines (F) and (L)?

Questions for Lesson #1A

10. Give the lettered lines in the front view which identify the object lines of the flanges of the beam.

12. How many brackets are to be made?

Refer to Drawing 2 in the Appendix and answer the remaining questions.

11. Using the boxes below, identify all of the lettered lines as object, hidden, or center.

Object Lines	
Hidden Lines	
Center Lines	

Questions for Lesson #2A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. What three principal dimensions do all objects have?

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2. What is the minimum number of views needed to show these three dimensions?

3. What dimension is common to both front and top views?

4. In the building trade, the front view is called the _____.

Refer to Drawing 3 in the Appendix and answer the following questions.

5. Which two views on the drawing show the depth of the support bracket?

6. What kind of lines are (J) and (K)?

7. What kind of line is (E)?

8. What is the name of line (D)?

9. What line in the front view does surface (G) in the right side view represent?

10. What line in the top view represents surface (G) in the side view?

11. What surface in the top view represents line (K) in the front view?

12. What encircled letter in the right side view denotes an object line?

Questions for Lesson #2A

13. In addition to the views shown, would a left side view be of any value? Why?

15. From what material are the brackets to be made?

14. Is surface (M) in the three-dimension drawing visible in the multi-view drawings?

Questions for Lesson #3A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. What are the minimum number of views that can be used to describe an object?

Refer to Drawing 4 in the Appendix to answer the following questions.

2. From what material is the flange made?

3. What kind of line is (A)?

4. What kind of lines are (B) and (C)?

5. Give the encircled letter that denotes a dimension line.

6. What surface in the top view represents the line marked (J) in the front view?

7. What line in the front view represents the surface marked (M) in the top view?

8. What kind of line is (G)?

9. What kind of lines are (E) and (F)?

10. Give the encircled letter that denotes a center line in the front view.

Refer to Drawing 5 in the Appendix and answer the remaining questions.

11. Diameters are indicated on this drawing by the use of _____ and _____.

12. How many parts are required?

Questions for Lesson #4A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. Name the two general types of dimensions.

2. Bidirectional dimensions are placed on a drawing so as to be read from either the _____ or _____.

3. Valves and fittings in piping drawings are located by measurements to their _____.

Refer to Drawing 6 in the Appendix to answer the following questions.

4. What kind of line is (A)?

5. What kind of line is (B)?

6. What is the overall length of the part?

7. What is the overall height?

8. What is the overall depth?

9. What is the dimension from the hidden surface indicated by the $1\frac{3}{4}$ " dimension and the right edge of the part?

10. What is the center-to-center distance between the two similar holes?

11. What kind of line is (D)?

12. What line in the side view is represented by the surface marked (F)?

Questions for Lesson #4A

Refer to Drawing 7 in the Appendix to answer the following questions. The dimensions on the drawing are center-to-center.

13. Determine the overall center-to-center distance between the two exhausters as measured from the center of the exhauster outlets along the 2" drain line.

14. What is the longest piece of 3" pipe, center-to-center, utilized? Disregard the 3" exhaust line extending off the drawing.

15. What is the difference from the center of the tee in the 3" exhaust line to the center of the tripping device as measured **along** the $\frac{3}{4}$ " pipe?

16. What is the center-to-center dimension between fittings (A) and (B)?

17. What kind of line is (C)?

18. What is the distance along the 2" pipe between the center of fitting (A) and the center of the farthest exhauster 2" outlet?

19. What is the center-to-center distance between the two check valves on the 2" outlet?

20. What kind of line is (D)?

Questions for Lesson #5A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. In dimensioning arcs, or sections of circles, what does the letter "R" stand for?

2. When a hole is to be drilled, what information is contained in the first part of the note accompanying the hole?

3. Reducing the size of an object in a drawing to fit the paper is known as making the drawing

_____.

4. When a scale of $\frac{1}{4}" = 1'0"$ is used, to what length will each of the following actual sizes be drawn on the drawing?

Actual Size Drawn Size

12'	
8'	
2'	
6'6"	
10'3"	

5. Suppose you find it necessary to measure some pipe runs on a drawing that has a scale of $\frac{1}{2}" = 1'0"$. How long are the actual runs when the dimensions from the drawing are as follows?

Drawn Size Actual Size

6"	
10"	
4 $\frac{1}{2}"$	
7 $\frac{1}{4}"$	
12 $\frac{1}{8}"$	

Refer to Drawing 5 in the Appendix to answer the following questions.

6. What is the smallest outside diameter?

7. What is the largest outside diameter

8. What is the diameter of the hole in the roll?

Questions for Lesson #5A

9. What is the horizontal dimension of the tapered portion of the roll on the right end?

10. What is the overall width (length) of the pipe roll?

11. How many pipe rolls will be made for this order?

13. What is the basic diameter of the largest drilled hole?

14. How deep will the two holes be counter-bored?

15. What is the center-to-center distance between the two largest drilled holes?

Refer to Drawing 8 in the Appendix to answer the following questions.

12. How far from the top edge is the first counterbored hole located?

Questions for Lesson #6A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

- | | |
|---|---|
| 1. For pipe sizes less than 14", the pipe size given on a drawing is the outside diameter of the pipe.
A. True
B. False | 6. What does $\frac{3}{4}$ "-16NF-2 LH mean?

_____ |
| 2. Name the three types of symbols used to represent threads on a drawing.

_____ | 7. How many holes are to be threaded with $\frac{3}{4}$ " threads?
_____ |
| | 8. How deep is the $\frac{3}{4}$ "-16NF-2 LH thread?
_____ |
| Refer to Drawing 9 in the Appendix to answer the following questions. | 9. What does $\frac{1}{2}$ "-NPT mean?
_____ |
| 3. How many holes are to be $\frac{5}{8}$ "-11NC?
_____ | 10. How deep are the pipe threaded holes?
_____ |
| 4. What does $\frac{5}{8}$ "-11NC-2 mean?

_____ | 11. How many holes have tapered threads?
_____ |
| 5. How deep are the holes to be threaded $\frac{5}{8}$ "-11NC-2?
_____ | 12. How far apart are the drilled hole and the $\frac{3}{4}$ "-16NF threaded hole?
_____ |

Questions for Lesson #6A

13. How deep is the drilled hole?

15. Of what material is the part to be made?

14. What is the overall height of the rocker plate?

Questions for Lesson #7A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. What is the basic purpose of a sectional view?

2. What is a “cutting plane” as used with sectional views?

3. How is a cutting plane line represented on a drawing?

4. What do the arrowheads on the end of the cutting plane line signify?

5. What is a full section? A half section?

Full: _____

Half: _____

6. May hidden lines be omitted in sectional views? Explain.

7. Where are “cross hatch” lines used on sectional drawings?

8. When are partial or “broken out” sections used?

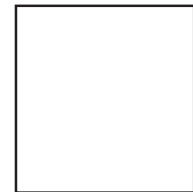
9. Sketch the section line symbols for cast iron, brass and concrete.



Cast Iron



Brass



Concrete

Quiz continues on next page.

Questions for Lesson #7A

Refer to Drawing 10 in the Appendix to answer the following questions.

10. What type of section is used on the check valve?

11. What type of section is used on the globe valve?

12. Would a half section view of the globe valve completely describe it?

13. Look at the section line symbols used and state what material the following globe valve parts are made of.

Part	Material
Body	
Body seat ring	
Disc	
Disc stem ring	
Union bonnet ring	
Bonnet	
Packing nut	
Wheel nut	
Wheel	

14. What part or parts of the globe valve are not sectioned?

15. Of what material are the following check valve parts made?

Part	Material
Body	
Body seat ring	
Cap	

16. What parts of the swing check valve are not sectioned?

17. What type of sectional view is used on the union?

18. Of what material is the union made?

19. Would a full section view of the union be useful? Why?

20. Would a half section view of the check valve be acceptable?

Questions for Lesson #8A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. Name three factors necessary in making a good pencil sketch.

2. Why is a soft pencil desirable in sketching?

3. Why are long lines made with a single stroke to be avoided?

4. What is the technique that can be used to draw long, straight lines?

5. It is generally better to use a forearm motion when drawing long straight lines.

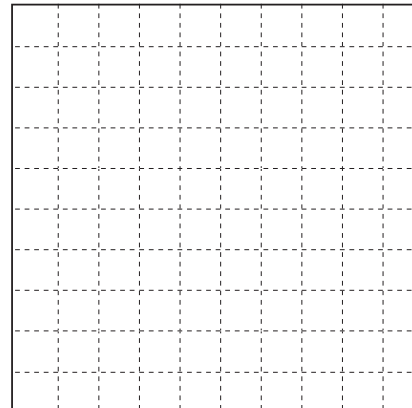
A. True
B. False

6. The same methods used in sketching horizontal lines can be applied to sloping lines.

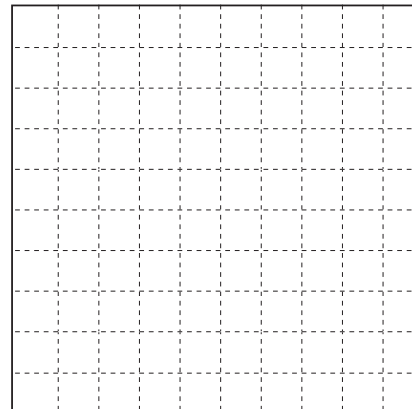
A. True
B. False

Refer to Drawing 11 in the Appendix to answer the following questions.

7. Sketch the **front** view of Block "A."

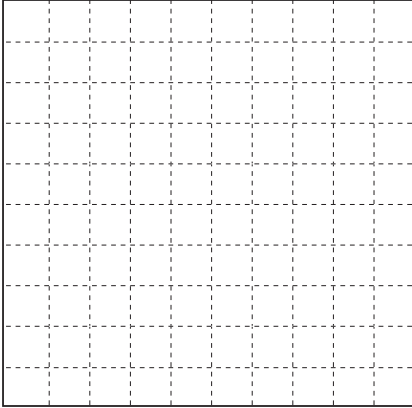


8. Sketch the **right side** view of Block "A."



Questions for Lesson #8A

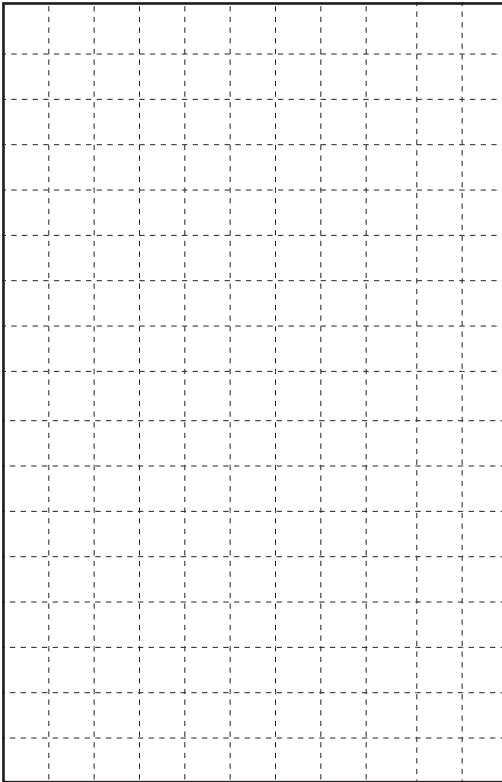
9. Sketch the **top** view of Block "A."



10. From which view can the angle of the sloping side be determined?

11. Sketch the front view of the welding coupling using grid provided below left.

12. Sketch the side view of the welding coupling using grid provided below right.

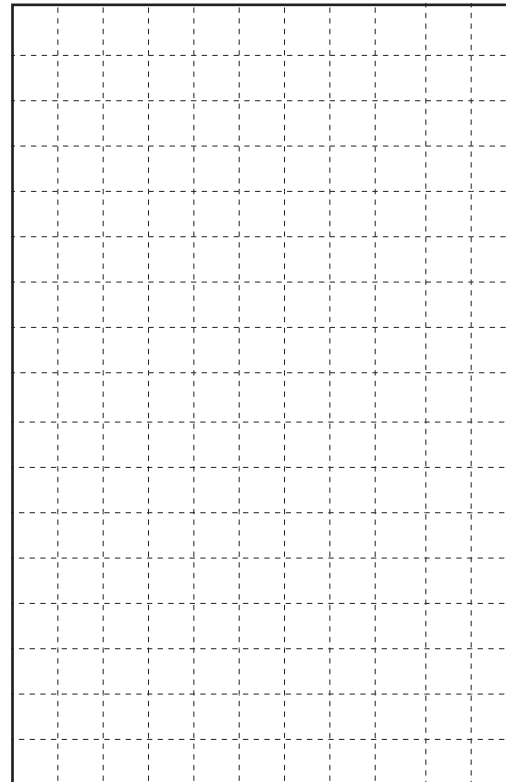


Question 11 Front view

13. Would a left side view show any more detail than the right side?

14. Would a top view show any added information?

15. Could the welding coupling be completely described in a one view drawing? Explain.

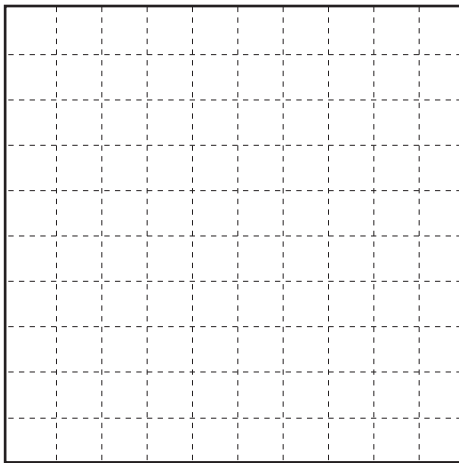


Question 12 Side view

Questions for Lesson #9A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. What two views in a drawing or sketch have the same depth?



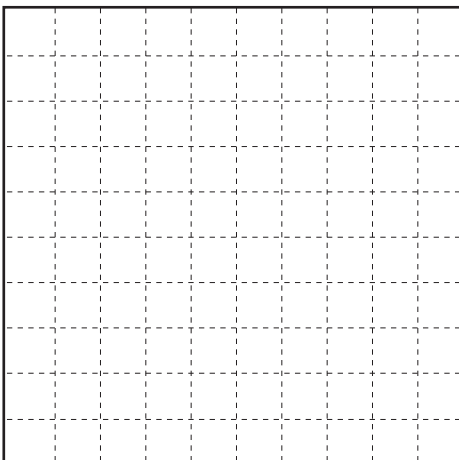
Top

2. Dimensioning requires the addition of two types of lines to the sketch. Name these lines.

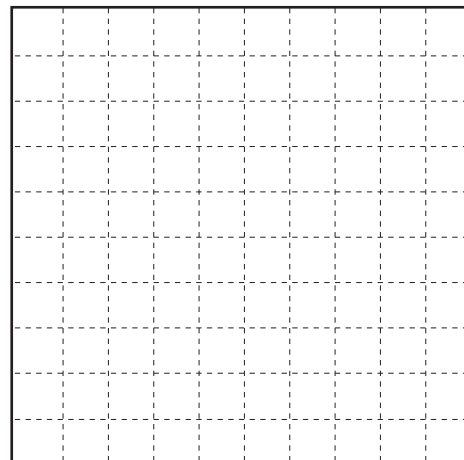
3. What two views in a drawing or sketch have the same height?

Refer to Drawing 12 in the Appendix to answer the following questions.

4. In the spaces provided, lay out and sketch the three views of the pipe support. Note: Squares are $\frac{1}{4}$ ".
5. Completely **dimension** the sketch.



Front



Right side

Questions for Lesson #9A

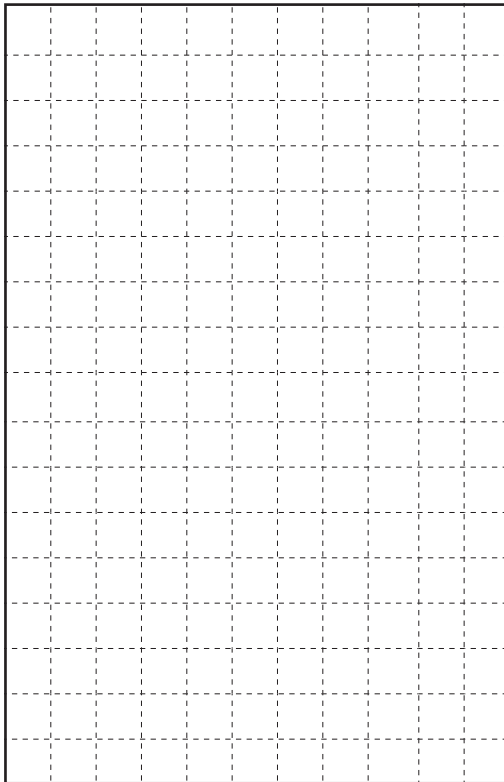
6. In what views do hidden lines occur?

7. What view(s) show the 1" hole as a circle?

8. What is the radius of the hole?

9. Lay out and sketch the front and side views of the flat iron hanger ring in grid provided below.

Front

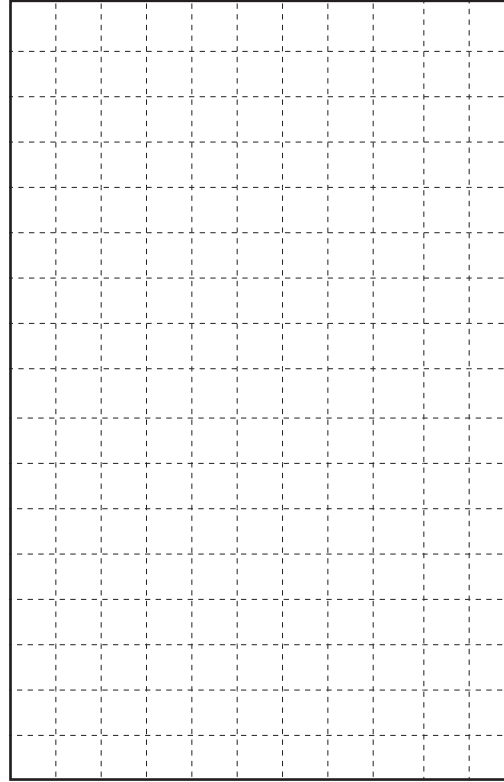


10. What is the diameter of the hole in the top of the ring?

11. What is the overall height of the hanger ring?

12. How is the hole in the top of the hanger ring represented in both of the views?

Side

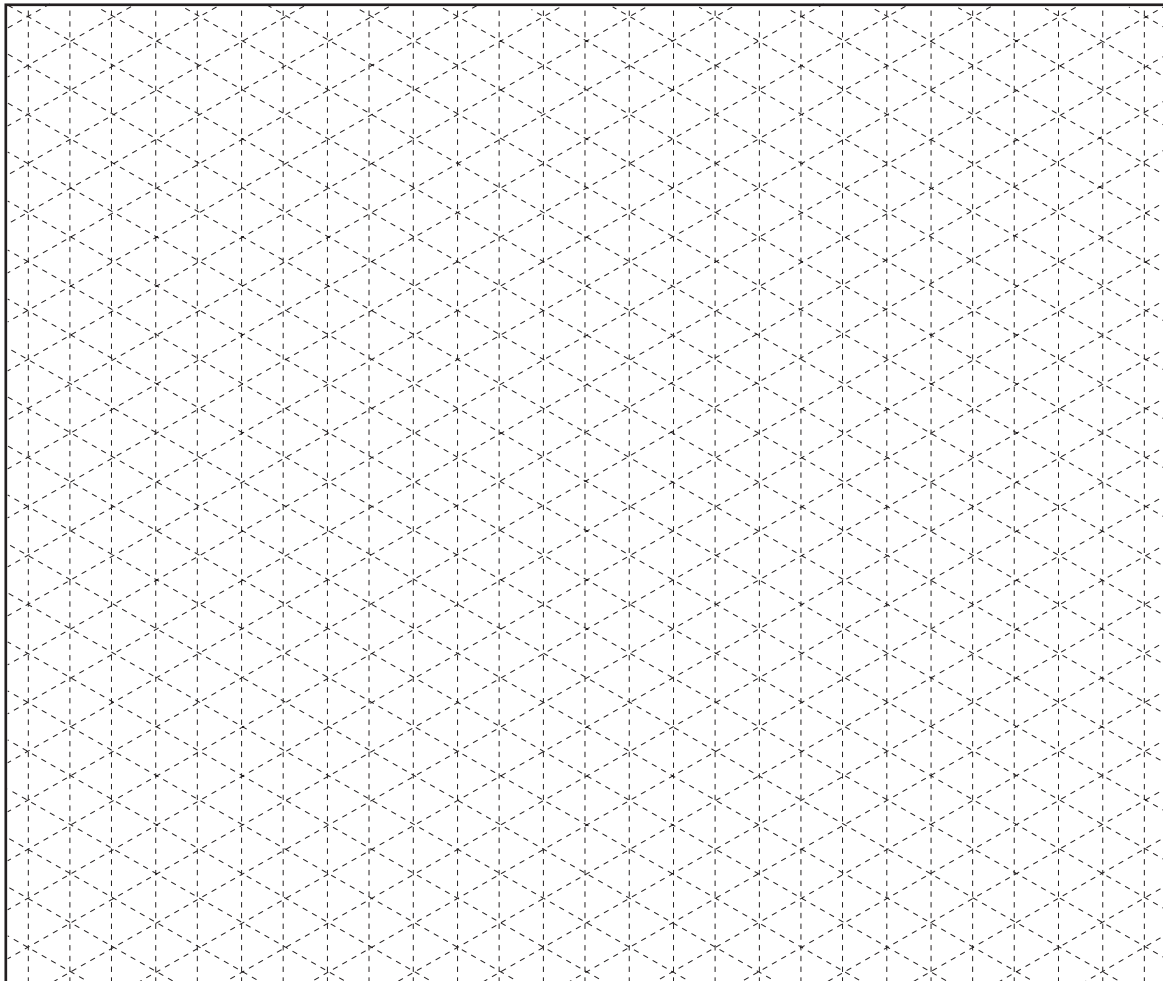


Questions for Lesson #10A

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1. What is the first step in drawing an isometric sketch?

2. The three principal dimensions appear in their true length in isometrics.
A. True
B. False
3. Using the iso-grid below, sketch an isometric of a 2" cube. In each visible side, construct a 2" circle. Note: Triangles are $\frac{1}{4}$ " on each side.



Questions for Lesson #10A

4. Look at the figures in your study guide that correspond to the figure numbers given below. Answer yes or no that they are or are not isometric drawings.

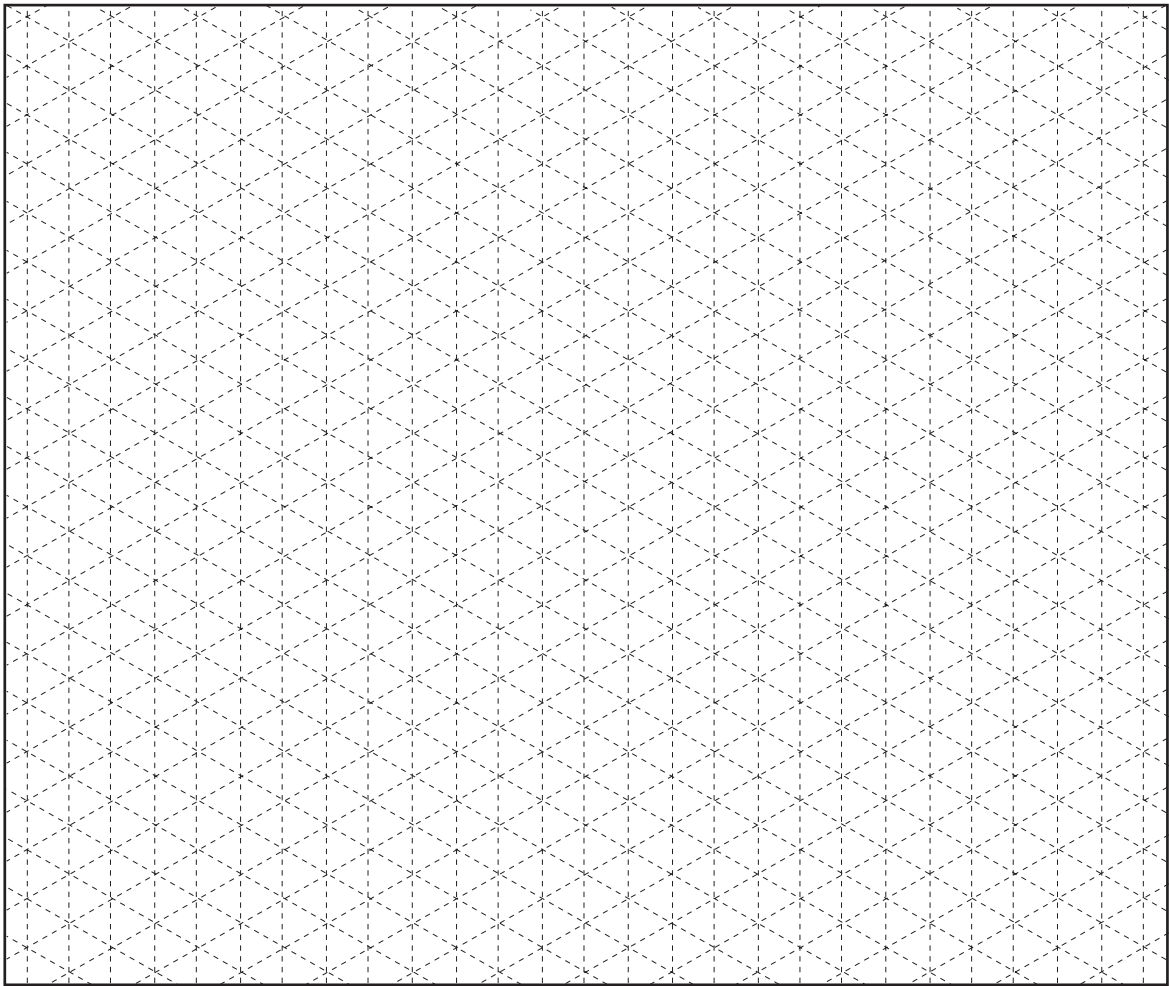
Refer to Drawing 13 in the Appendix

5. Make an isometric sketch of the object shown in the multi-view drawing.

Use isometric grid below.

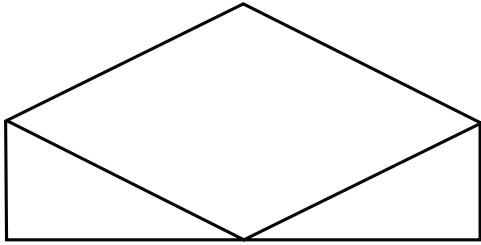
Figure numbers:

1.3		5.1	
1.7		5.6	
2.4		7.1	
3.1		7.3	
4.2		10.10	

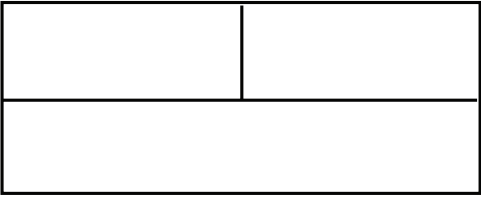


Questions for Lesson #10A

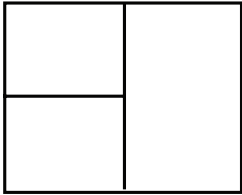
6. Using the iso-grid below, make an isometric sketch of the multi-view drawing of the cut-up block shown.



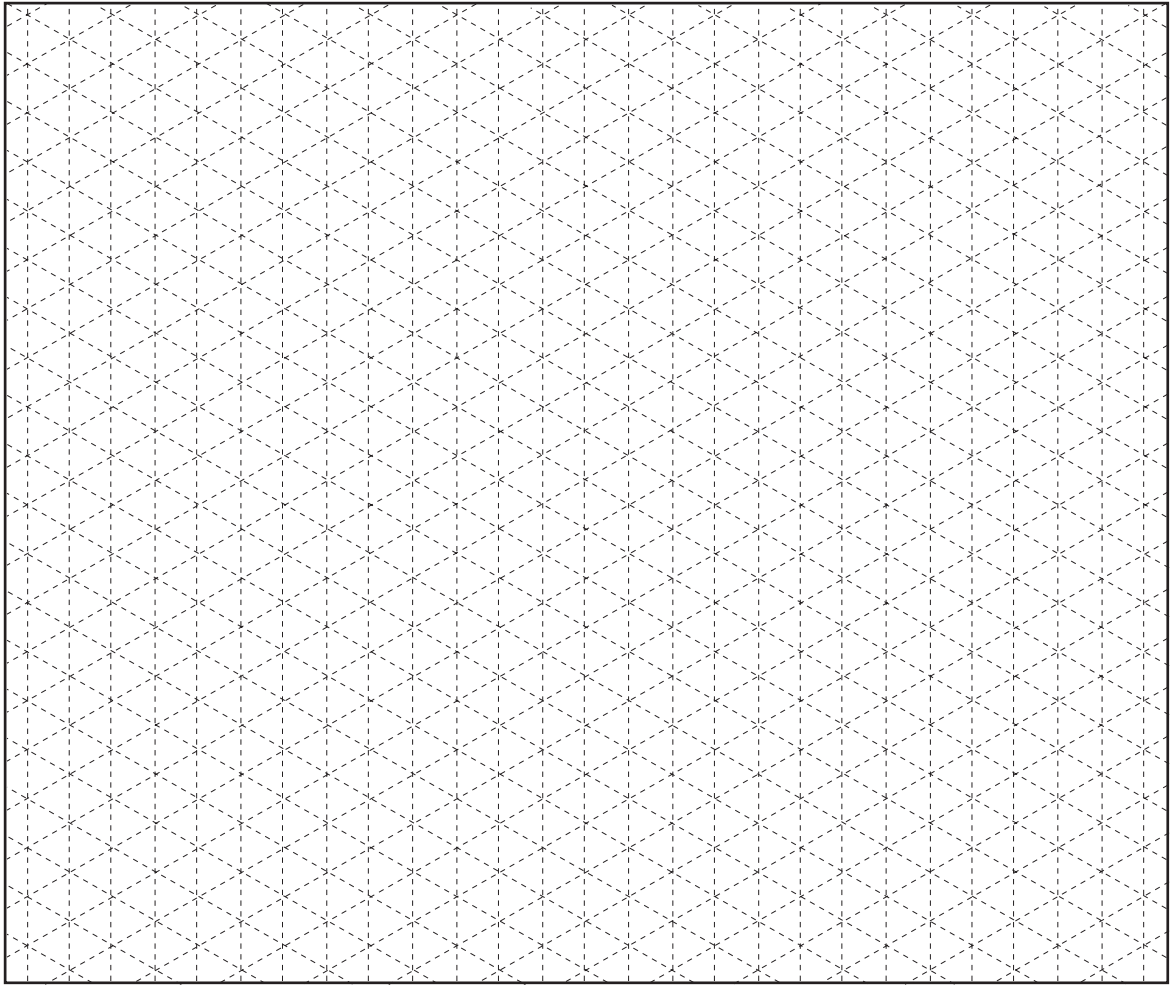
Top



Front



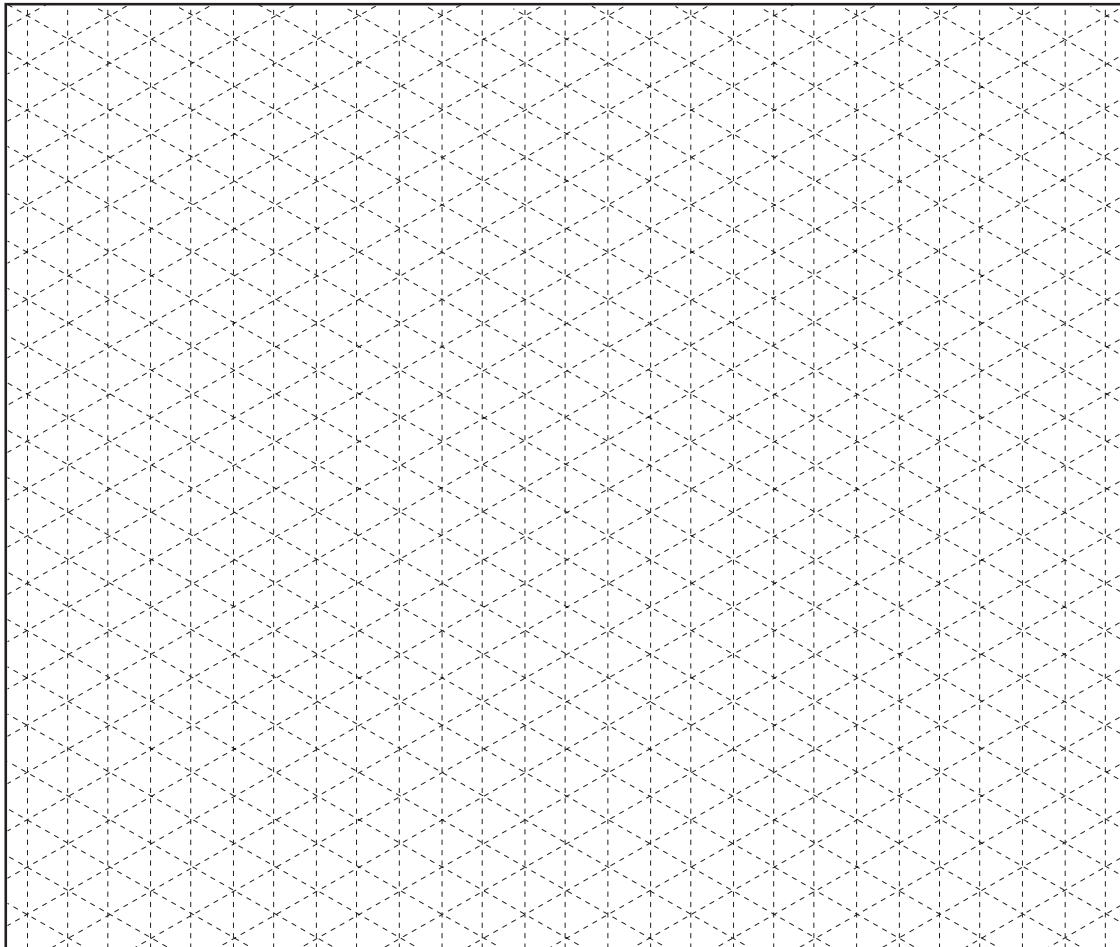
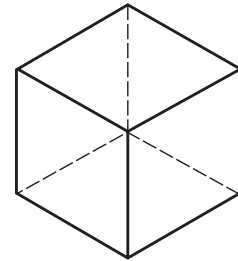
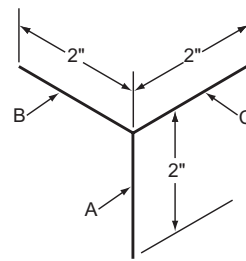
Right Side



Questions for Lesson #11A

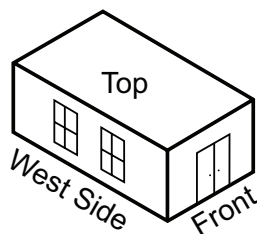
Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. Draw the isometric axes as shown in the first figure at right making each line 2 inches long. Draw the Vertical "A" line first, then the two horizontal lines "B" and "C." Add the lines necessary to complete a cube as indicated in the second figure below. *Notes: Hidden lines not normally shown on isometric drawings. Triangles are $\frac{1}{4}$ " on each side.*

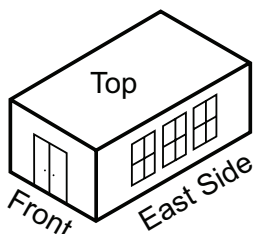


Questions for Lesson #11A

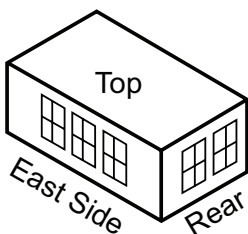
2. The figure below shows four isometric views of a small building. Using these views as reference, draw two isometric views, which, between them, show the top and the four sides. Use the dimension 1 inch wide, $\frac{3}{4}$ inch high, and $1\frac{1}{2}$ inches long.



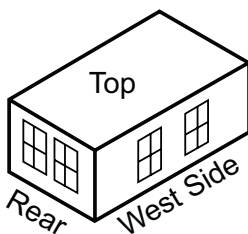
Left Front
Profile



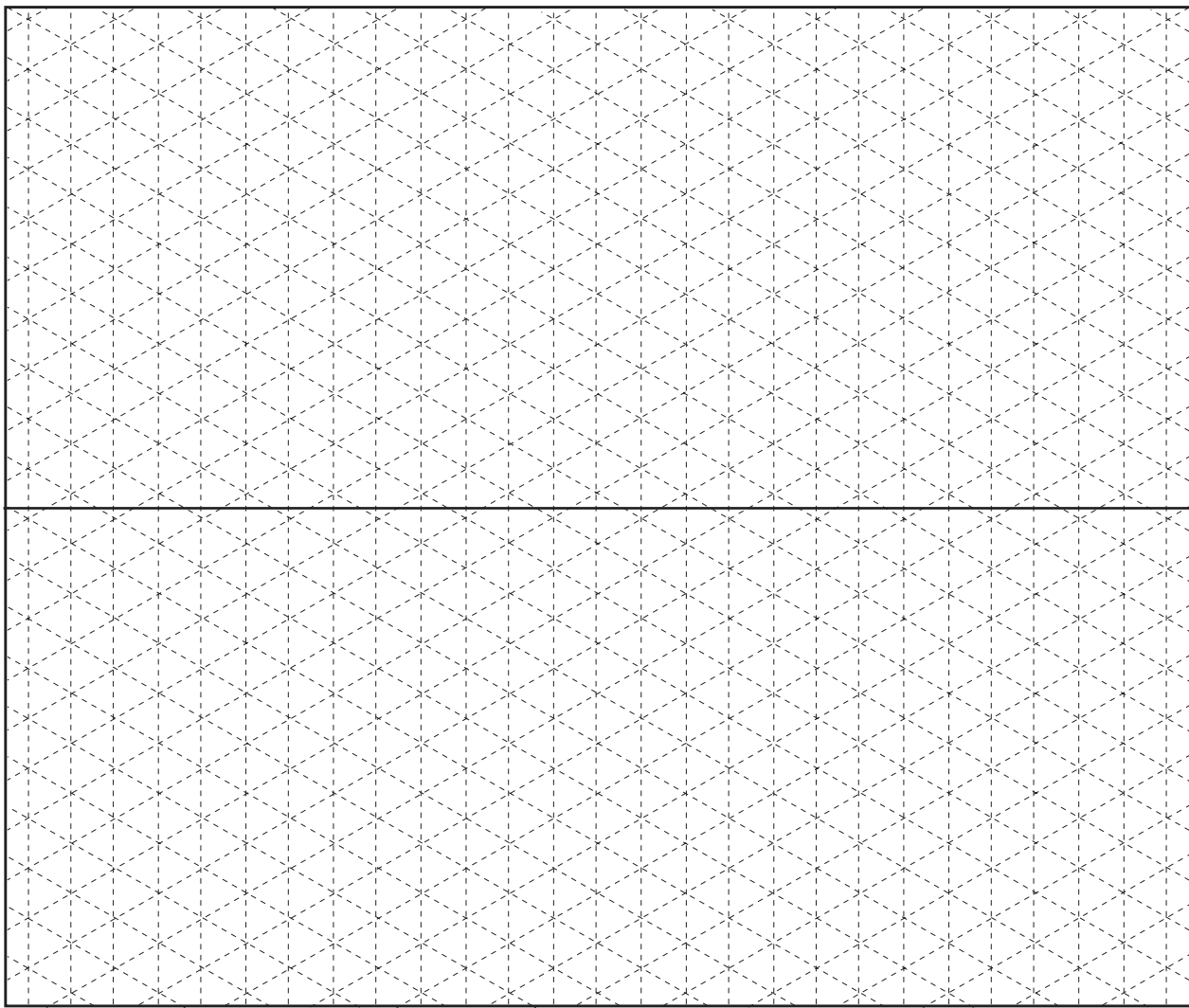
Right Front
Profile



Left Rear
Profile

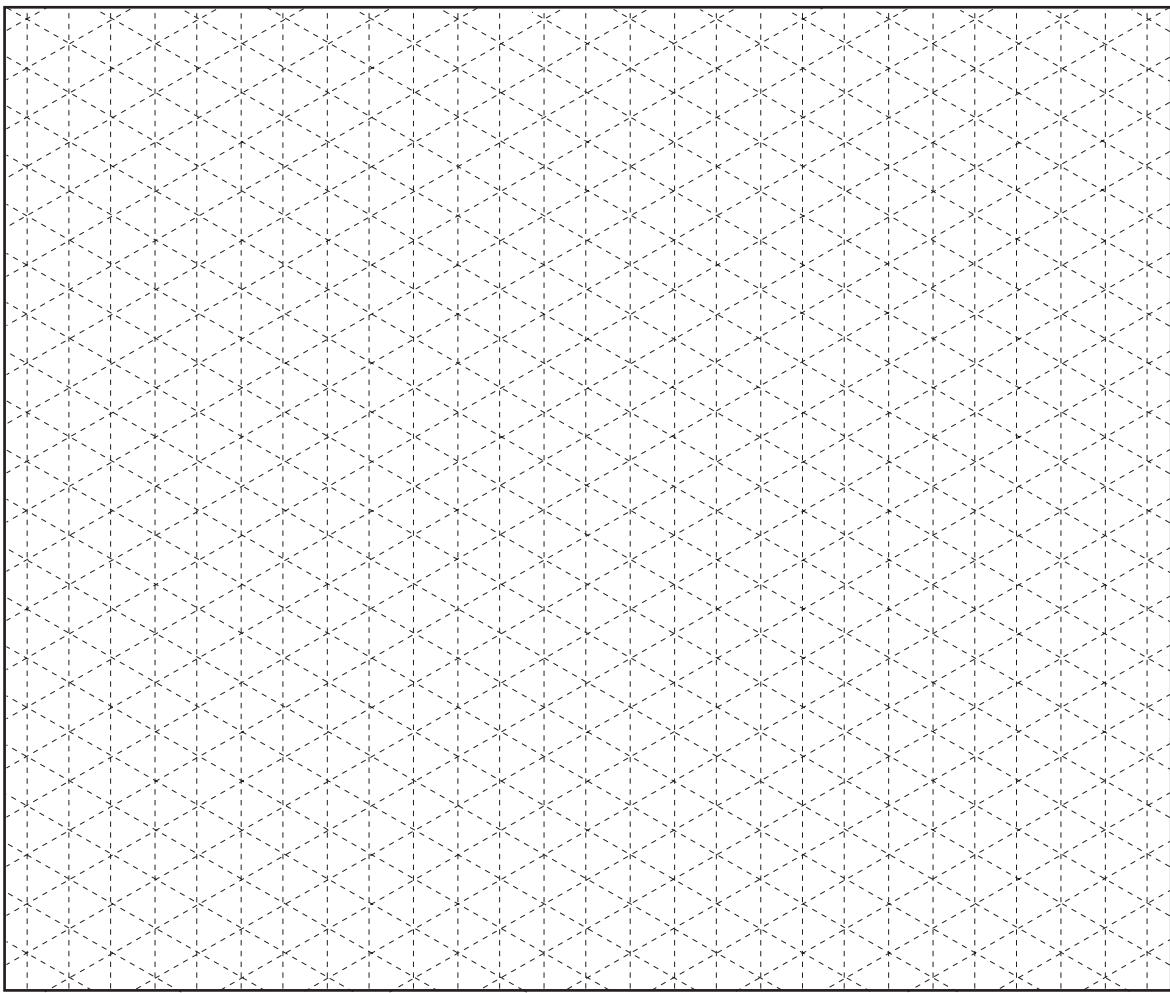
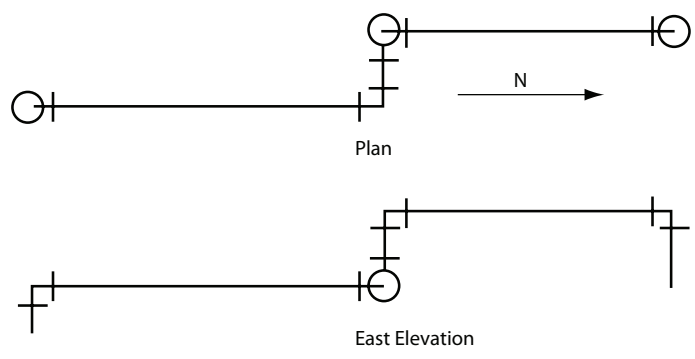


Right Rear
Profile



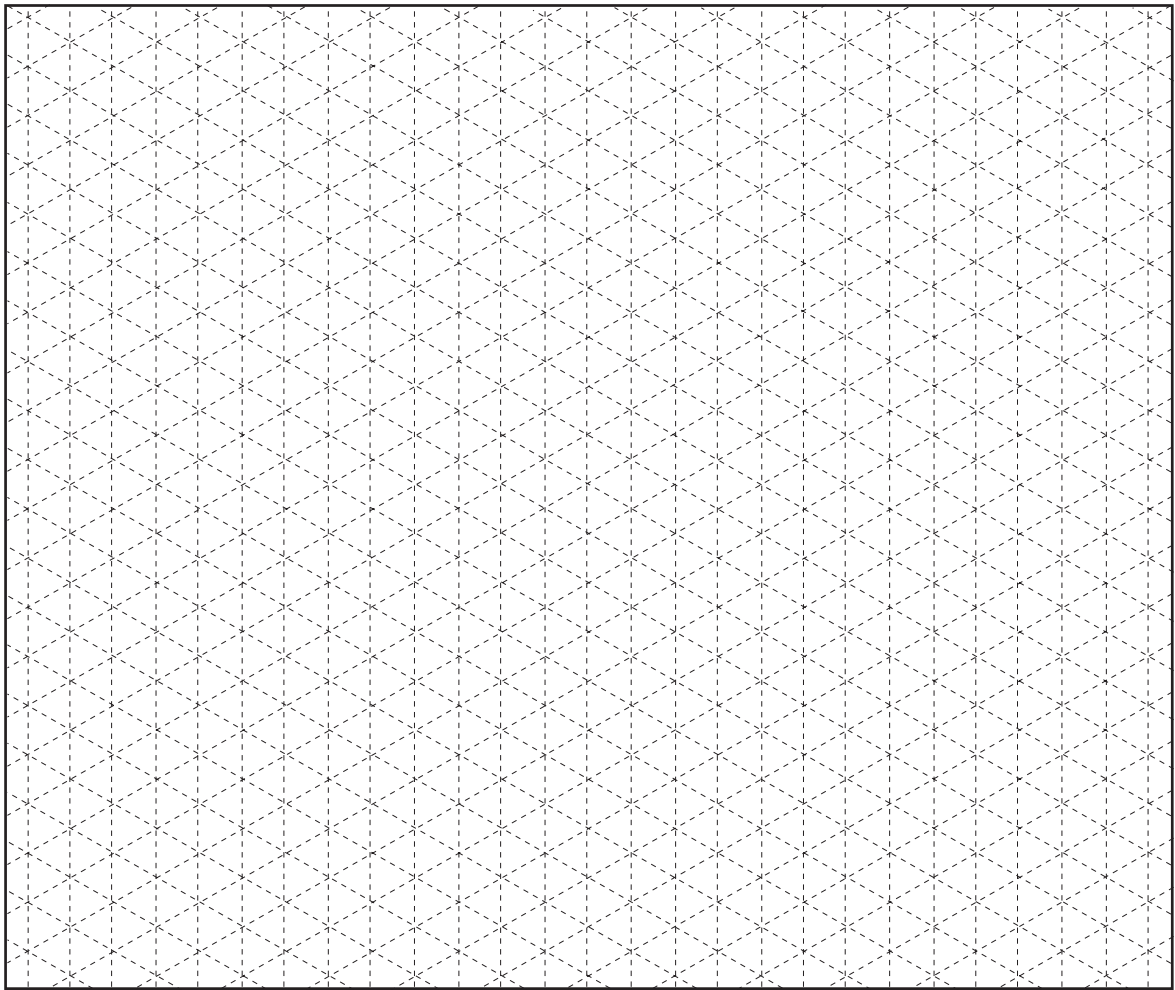
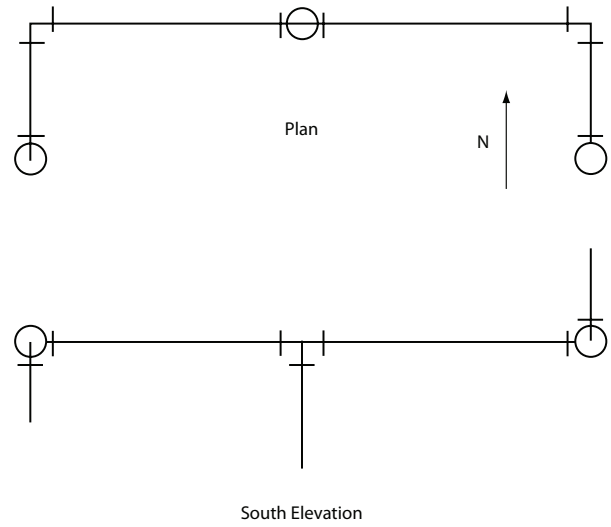
Questions for Lesson #11A

3. Convert the plan and elevation views below to an isometric drawing. Note: Triangles are $\frac{1}{4}$ " on each side.



Questions for Lesson #11A

4. Convert the plan and elevation views below to an isometric drawing. Note: Triangles are $\frac{1}{4}$ " on each side.

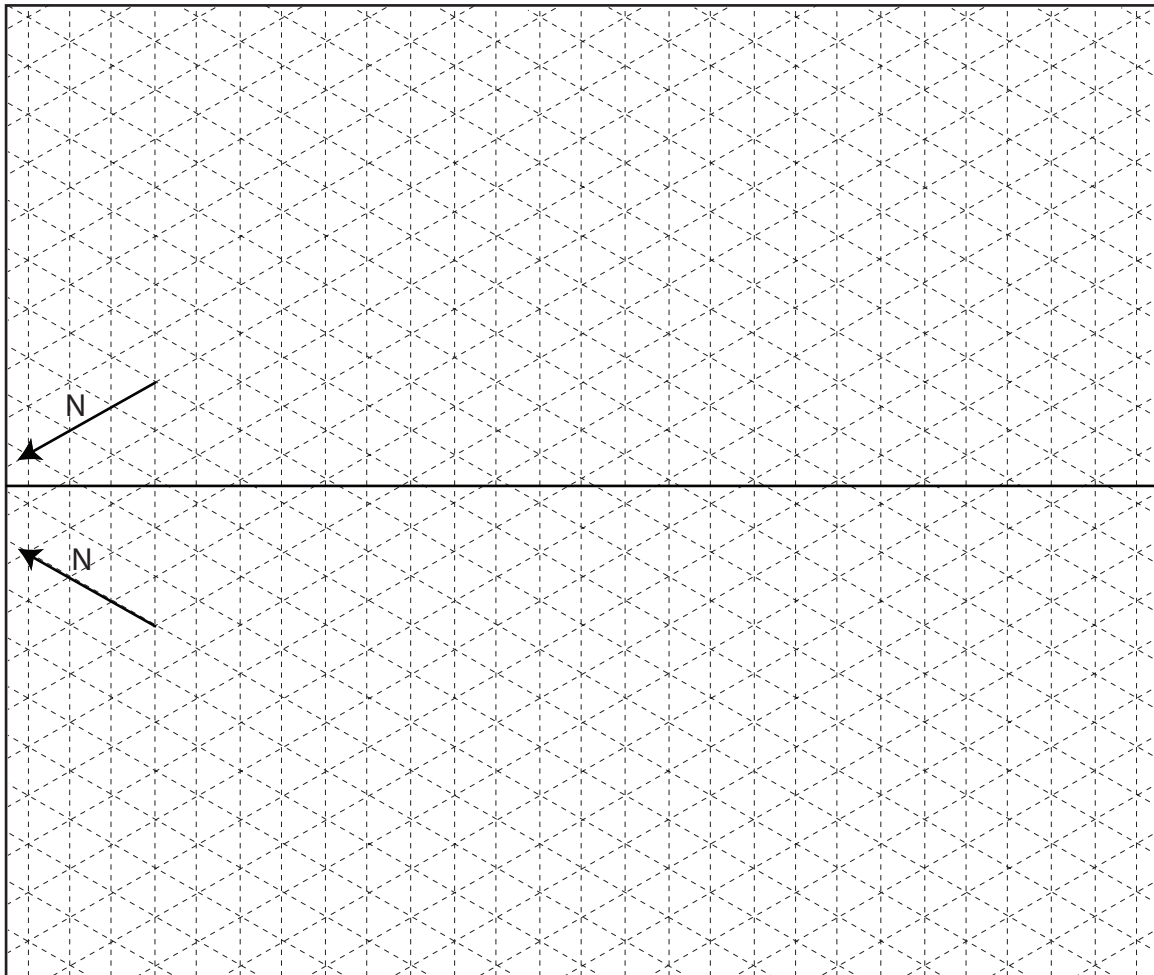


Questions for Lesson #12A

Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. Draw a southwest view and a northwest view of the building shown in Figure 12.2. The west side has two windows and the north side has one door.

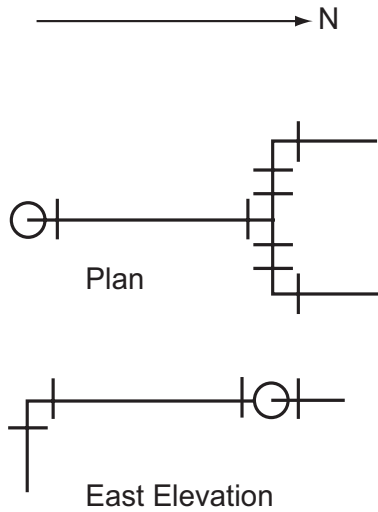
Northwest



Southwest

Questions for Lesson #12A

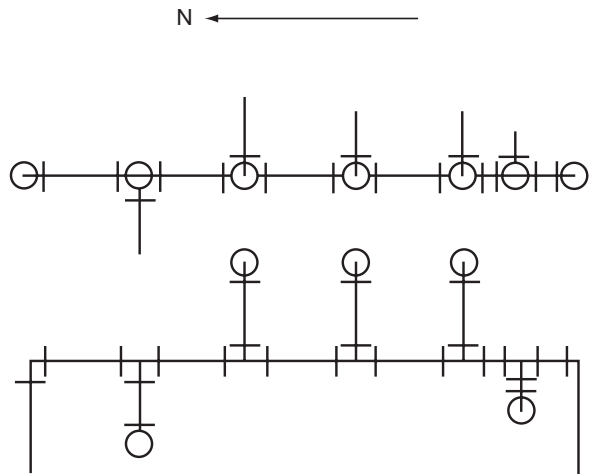
2. Draw all four isometric views of the piping in the figure below.



Southeast	Southwest
Northeast	Northwest

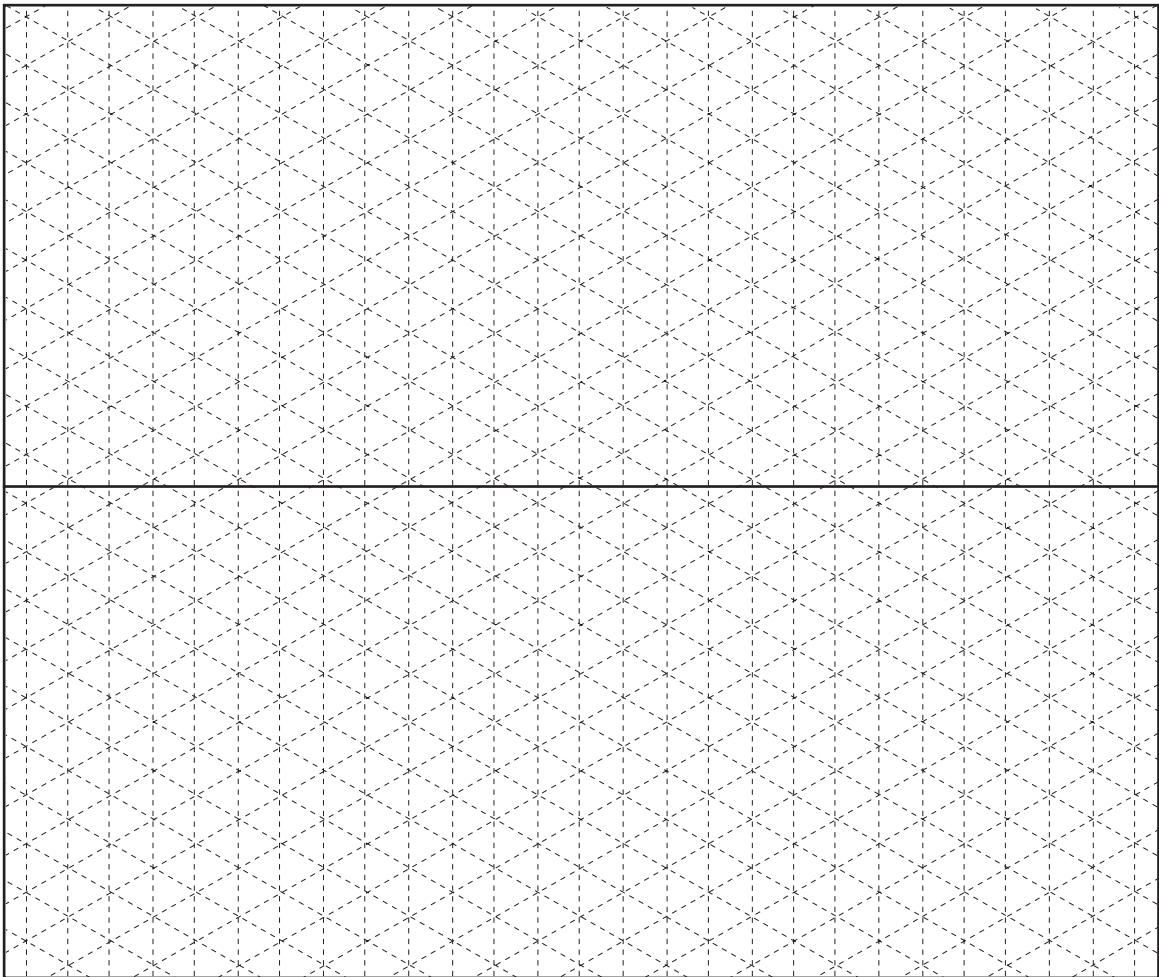
Questions for Lesson #12A

3. Draw the southeast and the northwest isometric views of the piping shown in the figure below.



West Elevation

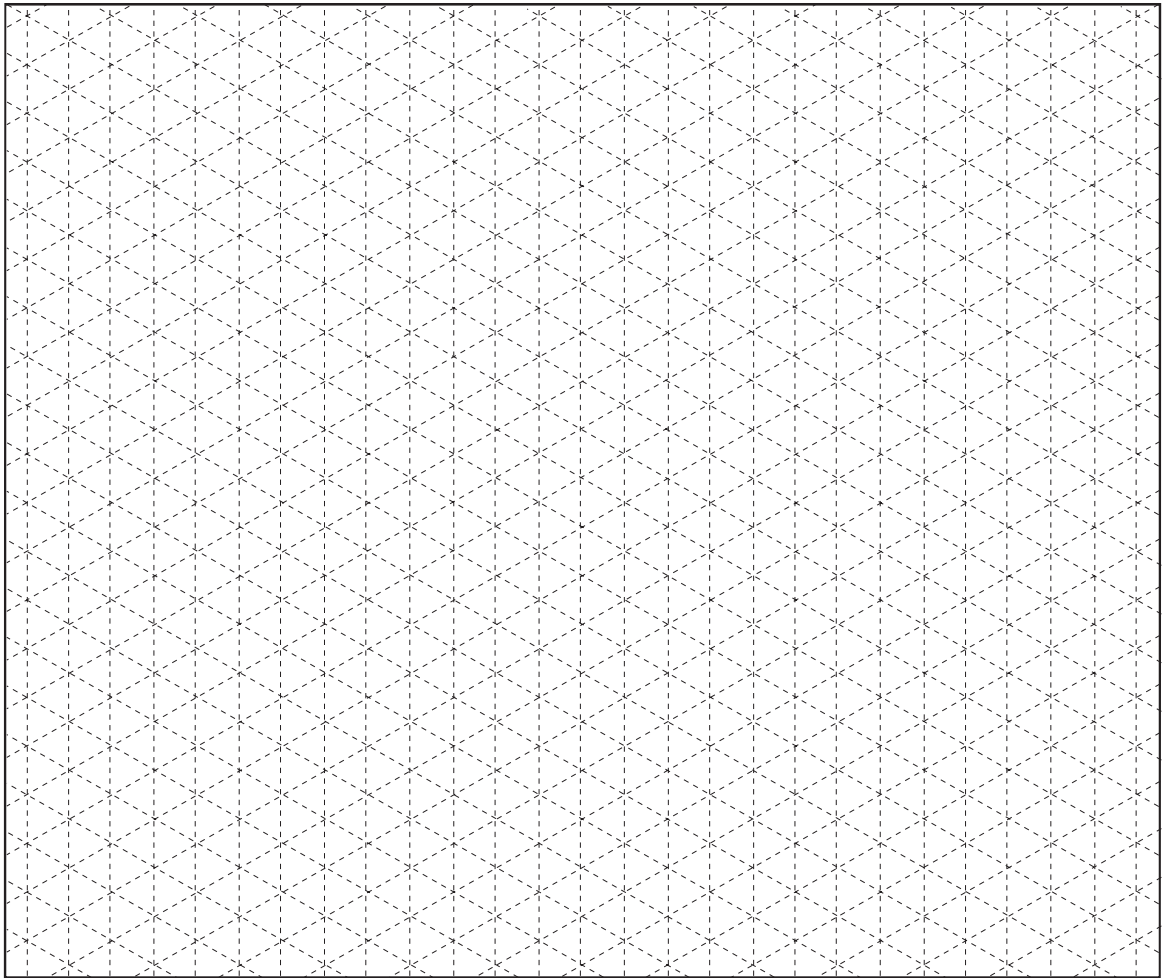
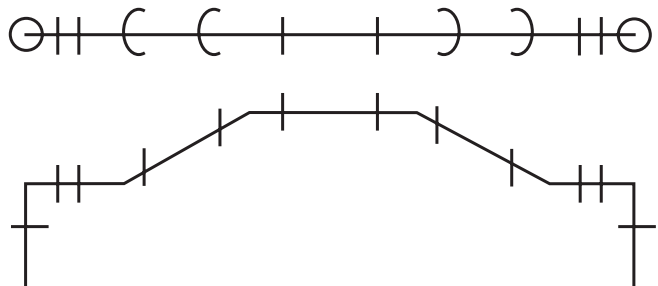
Northwest



Southeast

Questions for Lesson #12A

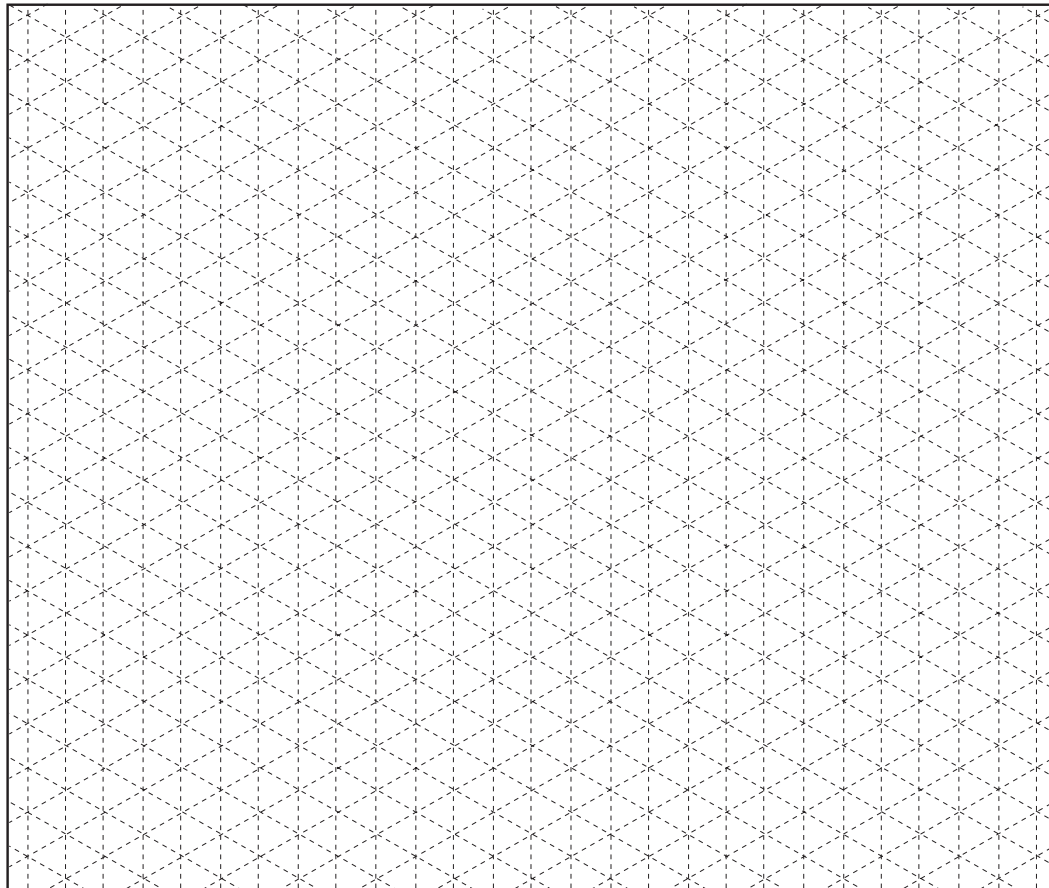
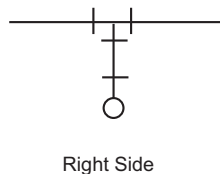
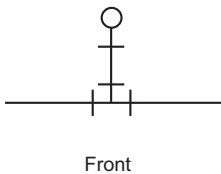
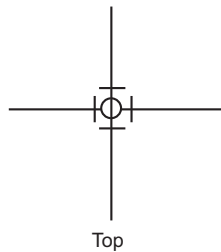
4. Draw a southeast isometric view of the piping below.



Questions for Lesson #13A

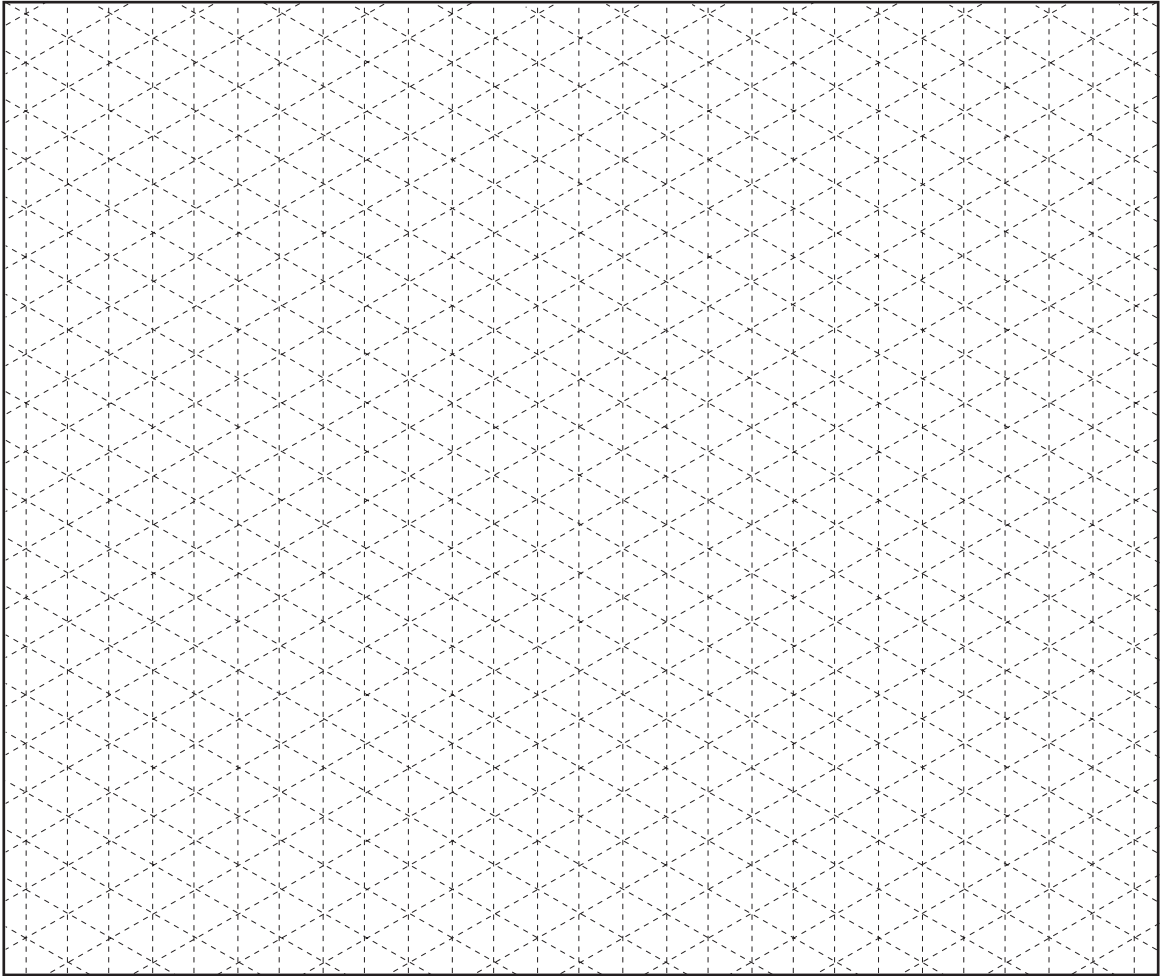
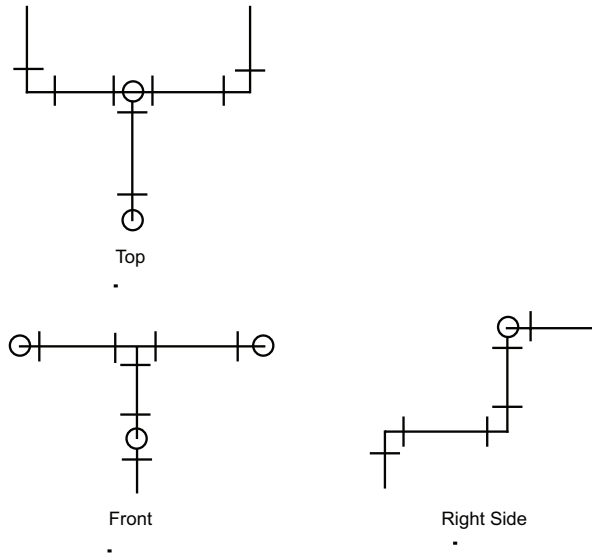
Record your final answers in the corresponding spaces below. Show all calculations when necessary. **Submit to WCC for correction with the provided lesson scantron. You must use a new answer sheet every time you submit this lesson quiz for correction.**

1. From the multi-view drawings provided, sketch the isometric in a single-line style. Show all fittings. Use approximately the same scale.



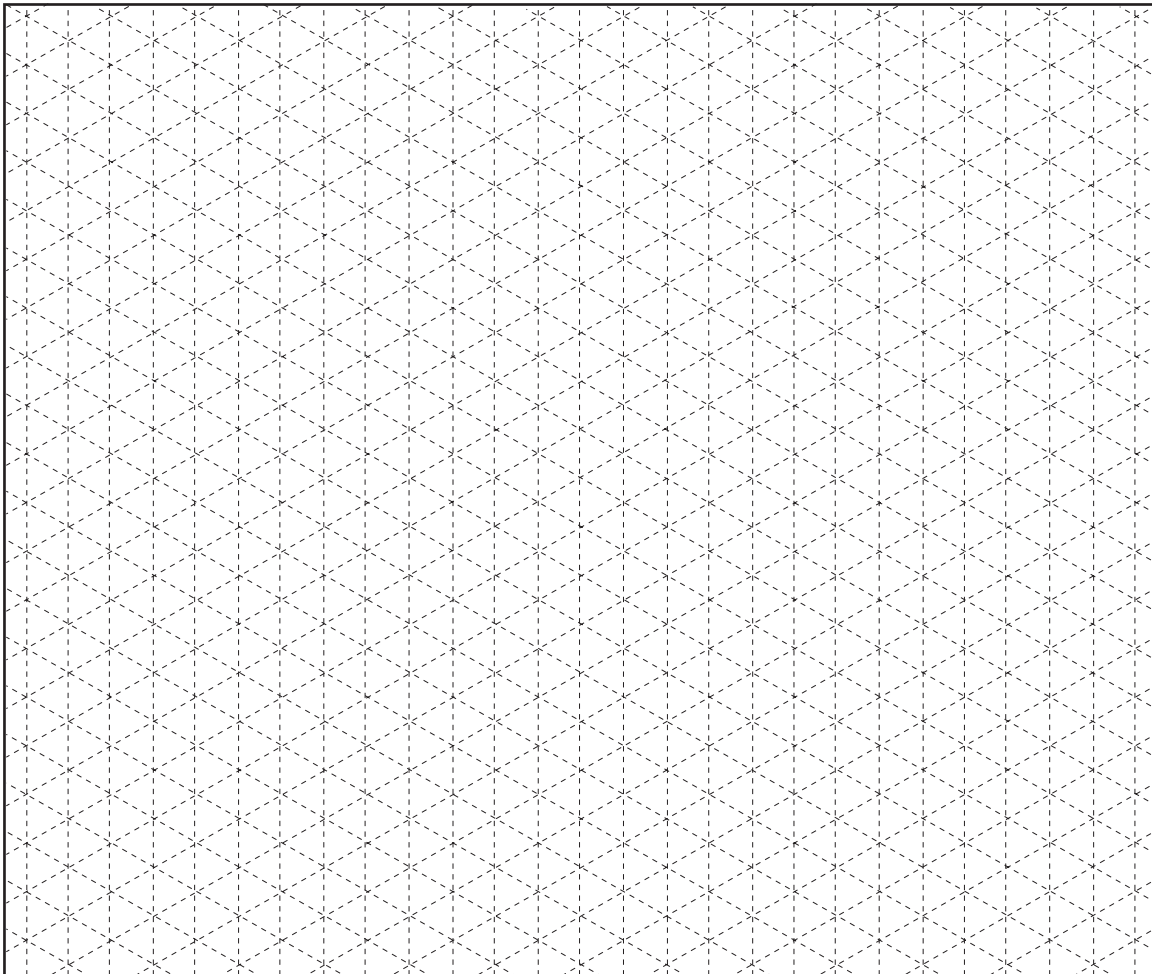
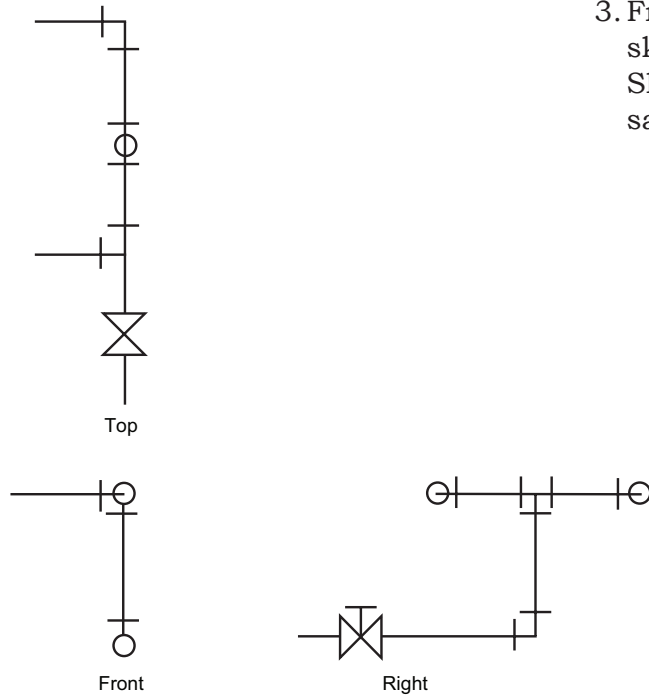
Questions for Lesson #13A

2. From the multi-view drawings provided, sketch the isometric in a single-line style. Show all fittings. Use approximately the same scale.



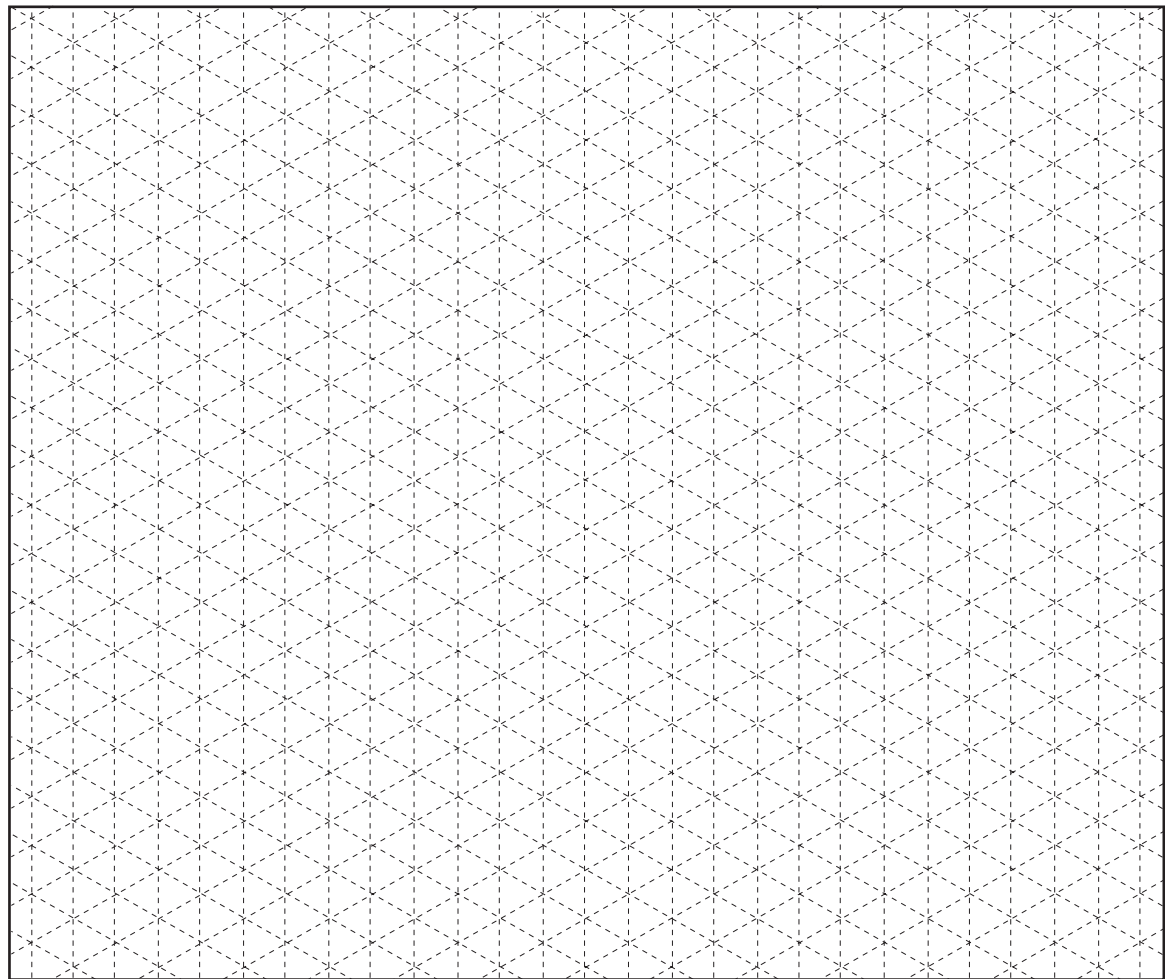
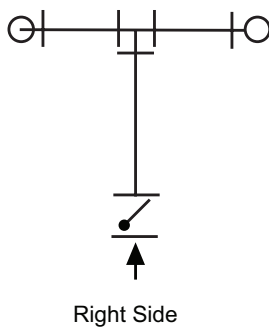
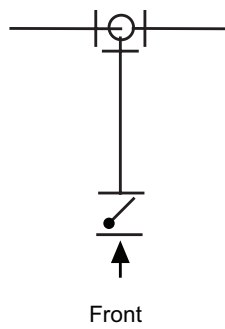
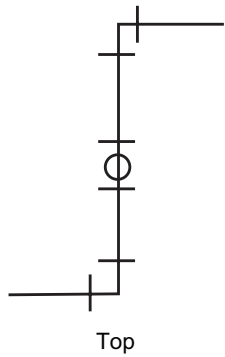
Questions for Lesson #13A

3. From the multi-view drawings provided, sketch the isometric in a single-line style. Show all fittings. Use approximately the same scale.



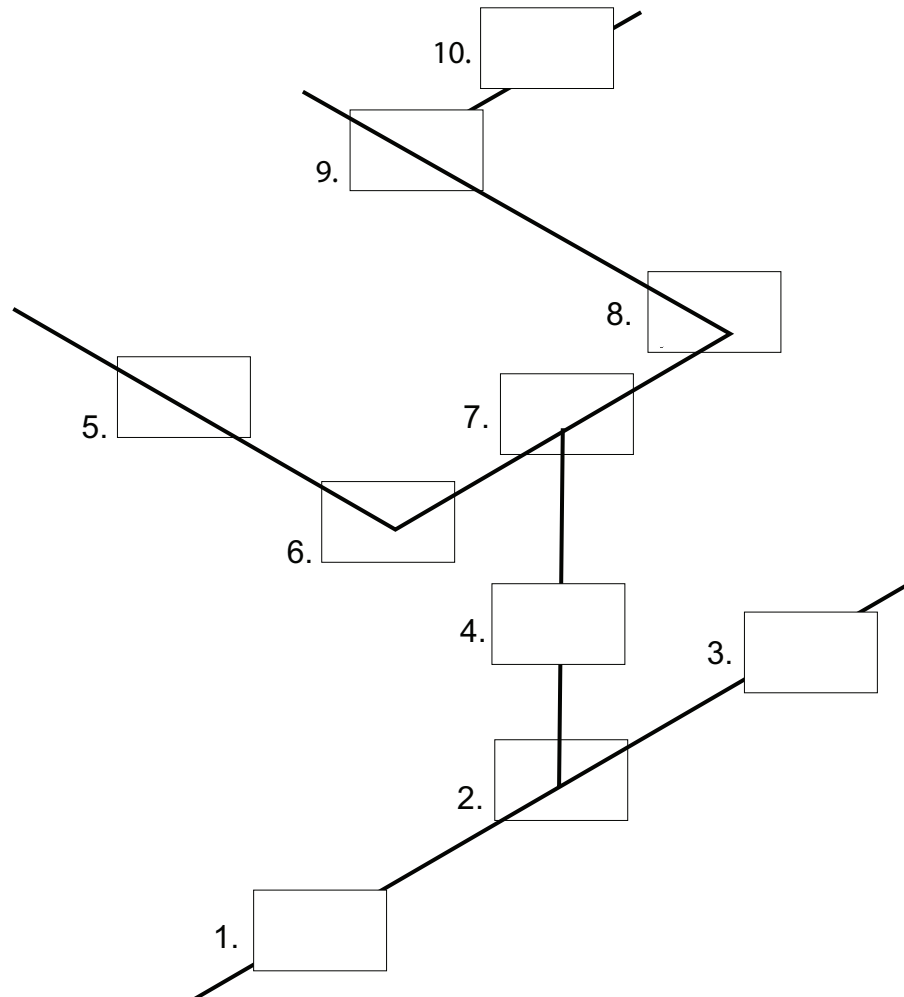
Questions for Lesson #13A

4. From the multi-view drawings provided, sketch the isometric in a single-line style. Show all fittings. Use approximately the same scale.



Questions for Lesson #13A

5. In the isometric diagram of piping system shown, sketch in the fittings as described below in the appropriate places numbered 1 to 10. Use single-line style.



1. bell and spigot gate valve, stem vertically up
2. welded tee
3. flanged gate valve, stem vertically up
4. screwed check valve, stem horizontal flanged 90°
5. union
6. screwed 90° elbow
7. flanged tee
8. flanged 90° elbow
9. screwed tee
10. screwed globe valve, waterflow up