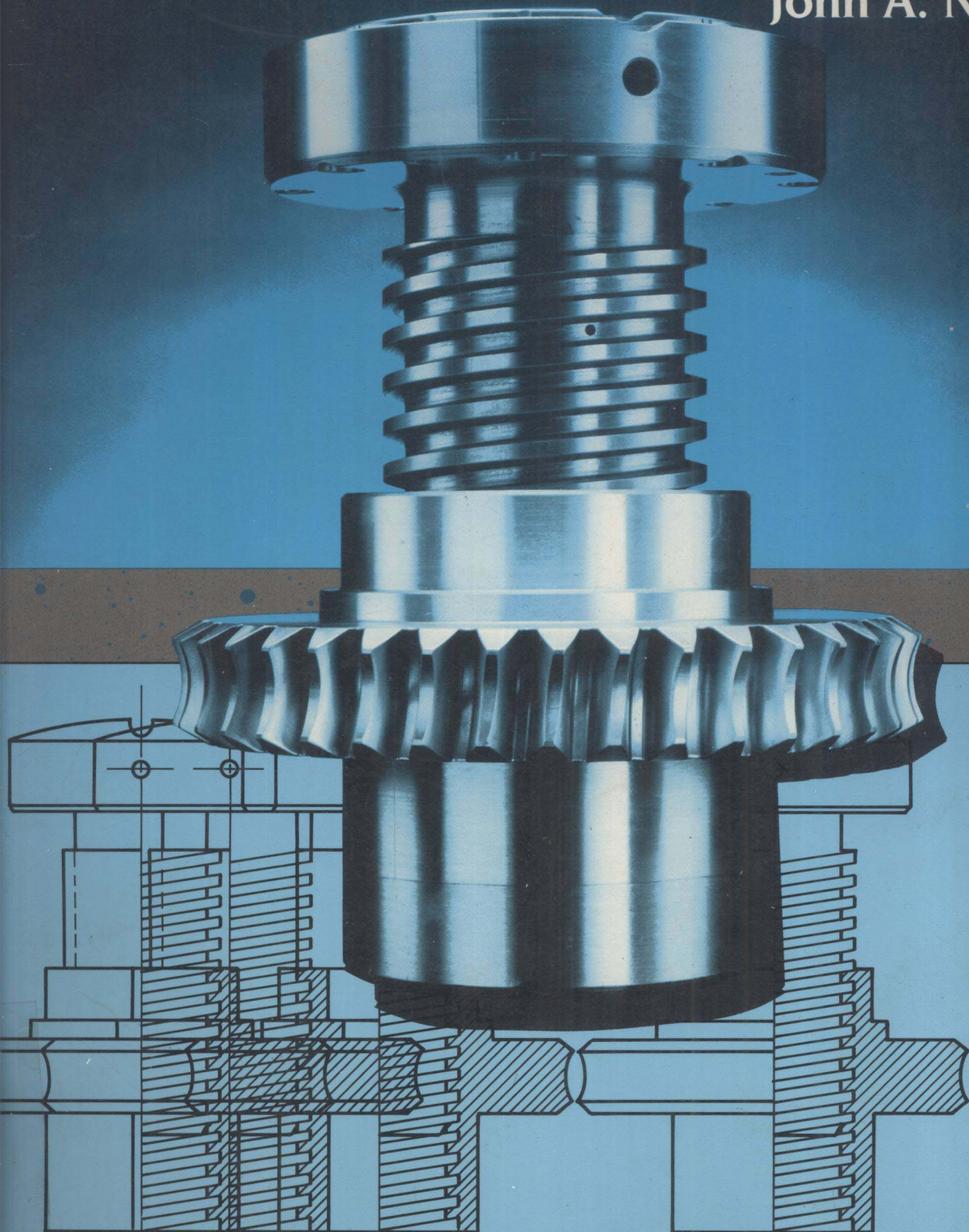


Workbook for
**TECHNICAL DRAWING
AND DESIGN**

John A. Nelson



Workbook for **TECHNICAL DRAWING and DESIGN**

John A. Nelson

Delmar Staff

Administrative Editor: Mark W. Huth

For information, address Delmar Publishers Inc.
2 Computer Drive West
Box 15-015
Albany, New York 12212

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Preface

This workbook can be used with any good drafting text but it has been designed especially for use with the text **TECHNICAL DRAWING AND DESIGN**, published by Delmar Publishers Inc., and parallels the material in that book. Each problem has been carefully developed to provide the student with realistic drawing problems that further develop the drawing concepts, techniques, and practices described in the text chapters. This workbook takes the beginning drafter from very basic techniques of drafting to advanced drawing problems. It also encourages the development of problem-solving techniques. All drawing answers should be in accordance with the *American National Standard Drafting Manual Y14*.

Because time available to teach vocational-technical drafting is limited and extra time must be incorporated to include CAD (computer-aided drafting), this workbook eliminates repetitious drawings and covers only material that is known to include the major fundamentals of drafting.

It is suggested that emphasis be stressed in the fundamental areas such as line thickness, compass usage, lettering, geometric construction, and descriptive geometry in order to provide the beginning student a solid base. Dimensioning should *not* be incorporated into the drawing problems until all basic fundamentals are fully mastered and understood. Answers given in the dimensioning section are suggestions only.

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Suggestions, comments, and criticisms from the users of this workbook and the instructor's guide will be most welcome.

John A. Nelson
Conval Regional Technical High School
Peterborough, New Hampshire 03458

Carefully measure each line using a full-size scale.
Enter each length in the spaces provided to the left.

SCALE: FULL

ANSWER

FRACTION	DECIMAL .XXX	METRIC .XX
<u> </u>	.078	<u> </u>
<u> </u>	<u> </u>	19.05
27/32	<u> </u>	<u> </u>
<u> </u>	<u> </u>	8.34
<u> </u>	.047	<u> </u>
15/32	<u> </u>	<u> </u>
<u> </u>	.953	<u> </u>
1 1/2	<u> </u>	<u> </u>
<u> </u>	5.375	<u> </u>
<u> </u>	<u> </u>	3.18
<u> </u>	.438	<u> </u>
<u> </u>	<u> </u>	15.88
1/64	<u> </u>	<u> </u>
<u> </u>	<u> </u>	49.21
3/8	<u> </u>	<u> </u>
<u> </u>	.453	<u> </u>

8760086

DATE

DRAFTER

BASIC TECHNIQUES

1

Carefully measure each line using the indicated scale.
Enter each length in the spaces provided to the left.

SCALE: HALF

ANSWER

SCALE: 10 X

ANSWER

SCALE: QUARTER

ANSWER

SCALE: FULL (METRIC)

ANSWER

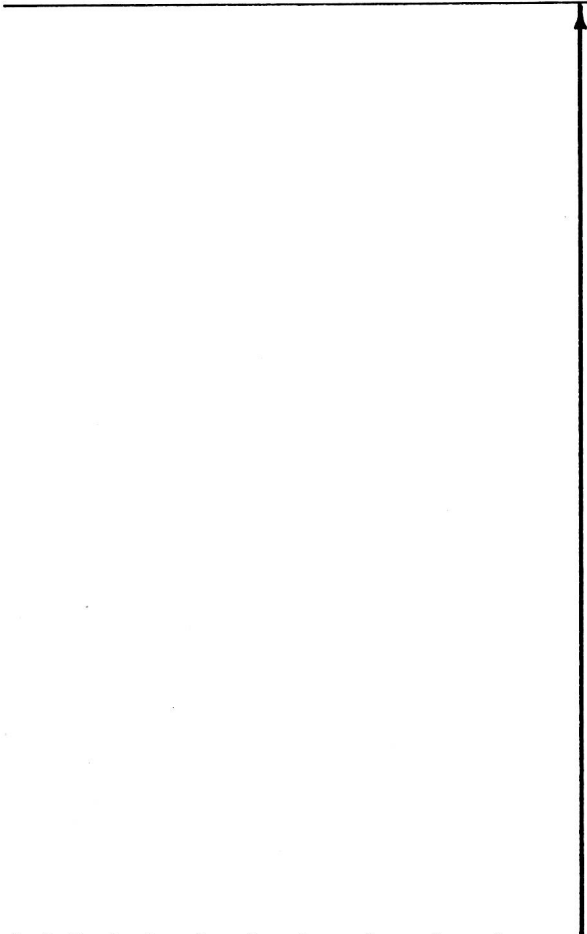
DATE

DRAFTER

BASIC TECHNIQUES

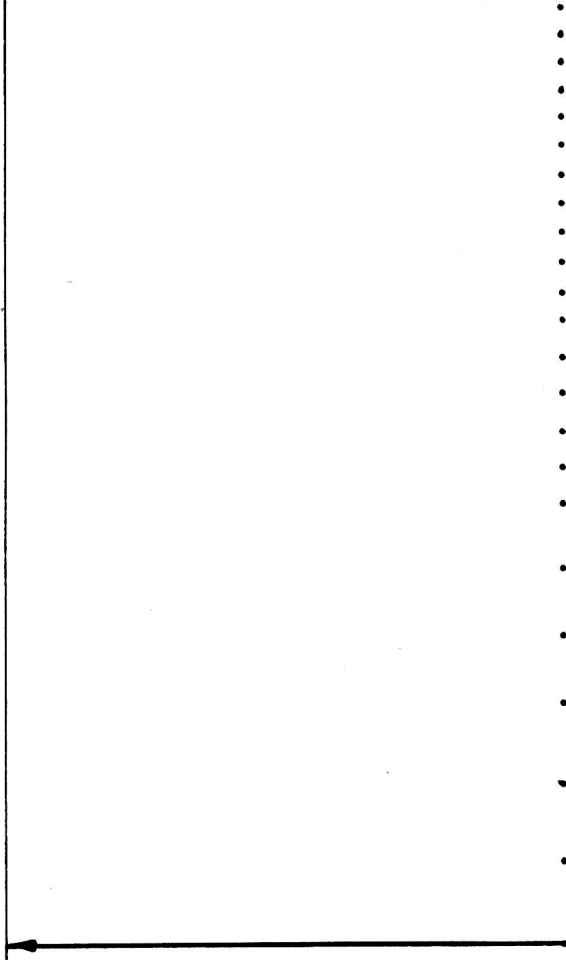
Starting from each dot below, draw a *thick* horizontal line.
Keep all lines the same thickness.

.....



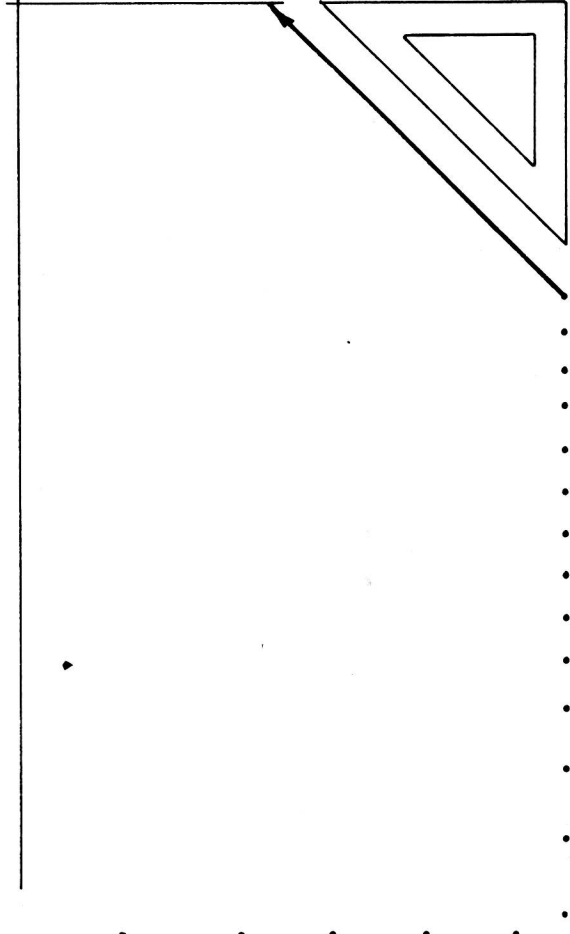
Starting from each dot below, draw a *thick* vertical line.
Keep all lines the same thickness.

.....



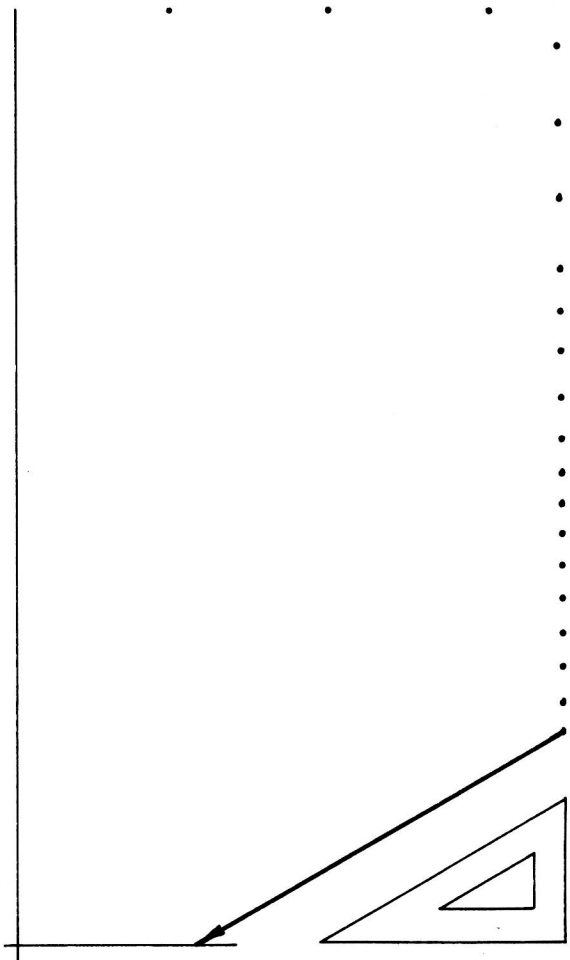
Starting from each dot below, draw a *thick* line at 45° .
Keep all lines the same thickness.

.....



Starting from each dot below, draw a *thick* line at 60° .
Keep all lines the same thickness.

.....

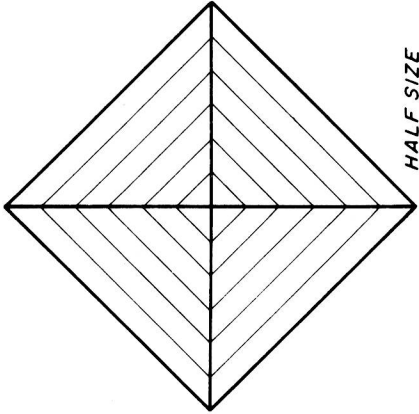


DATE _____

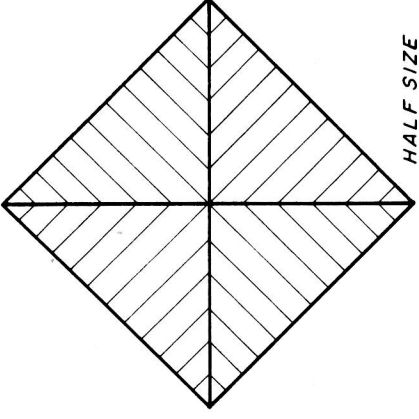
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BASIC TECHNIQUES

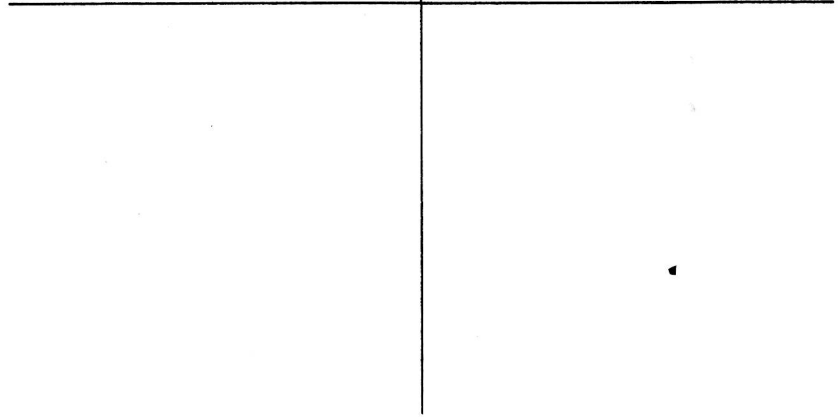
Each figure is shown half size.
 Draw each figure full size on the lines provided.
 Use thick and thin black lines.



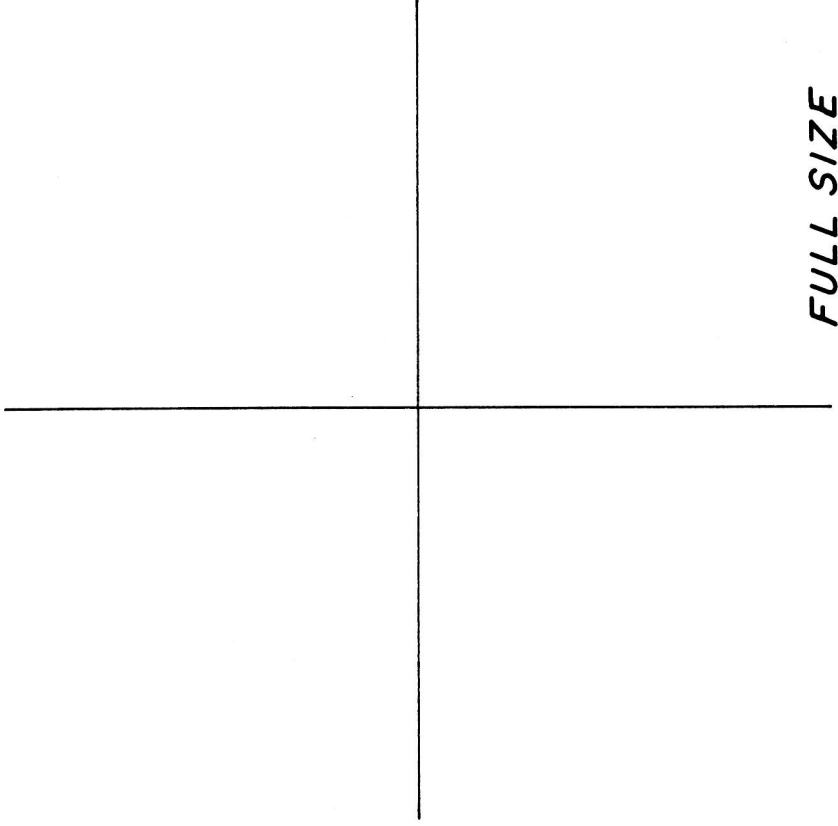
HALF SIZE



HALF SIZE

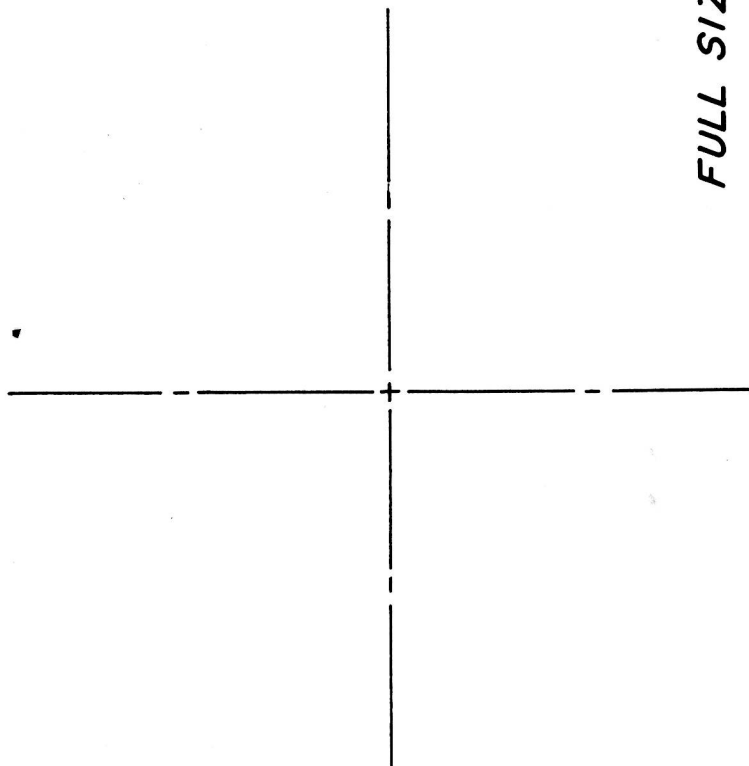
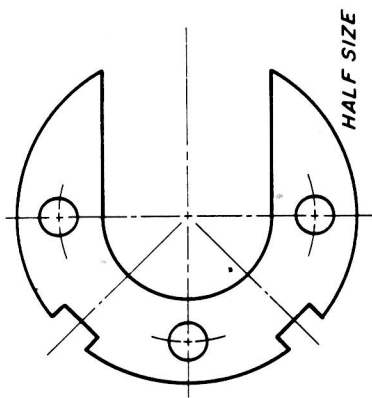
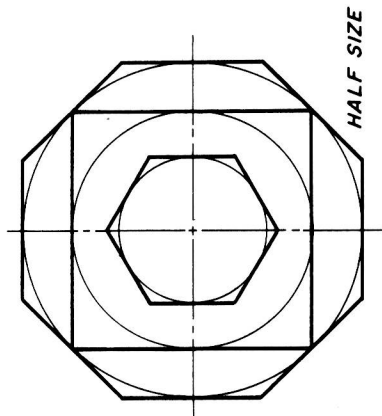


FULL SIZE

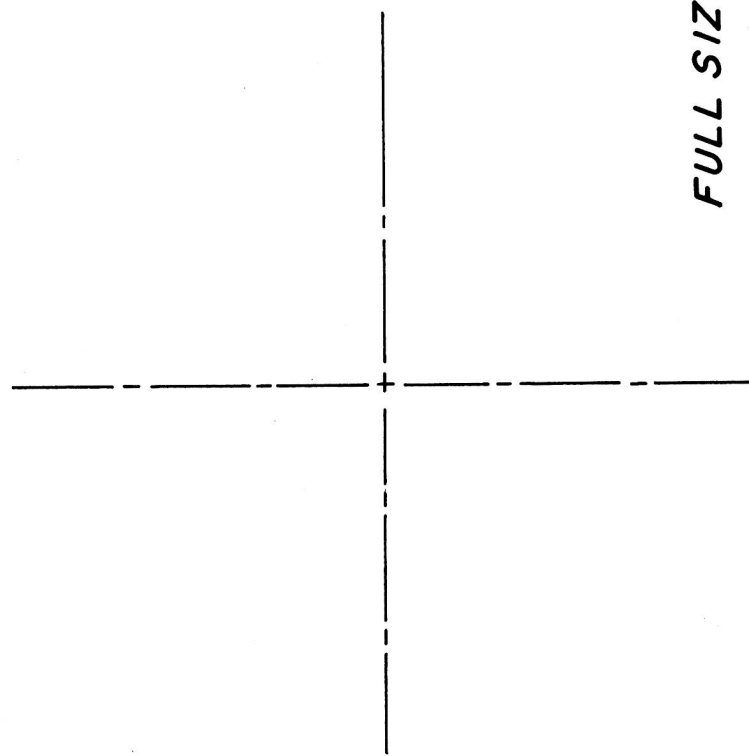


FULL SIZE

Each figure is shown half size.
 Draw each figure full size on the centerlines provided.
 Use thick and thin black lines.



FULL SIZE



FULL SIZE

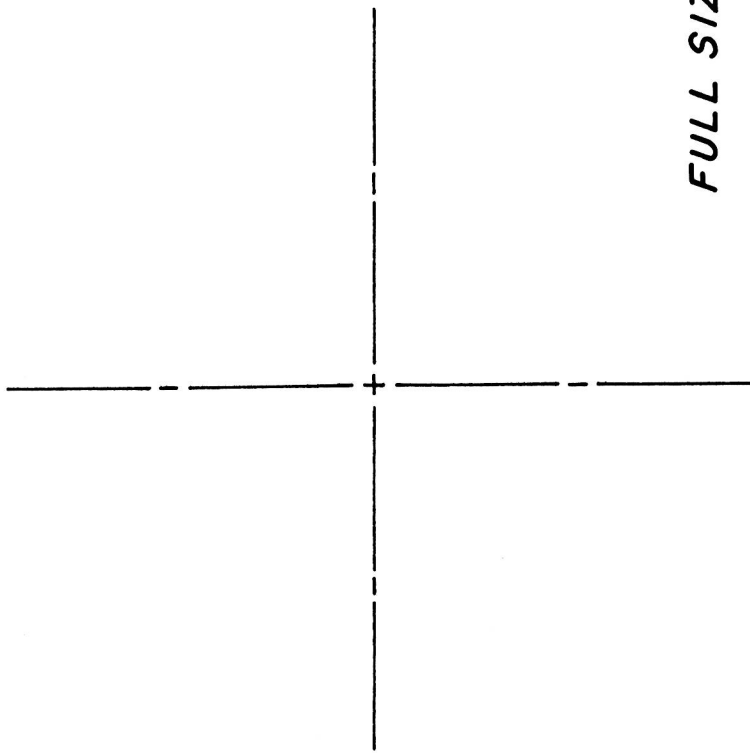
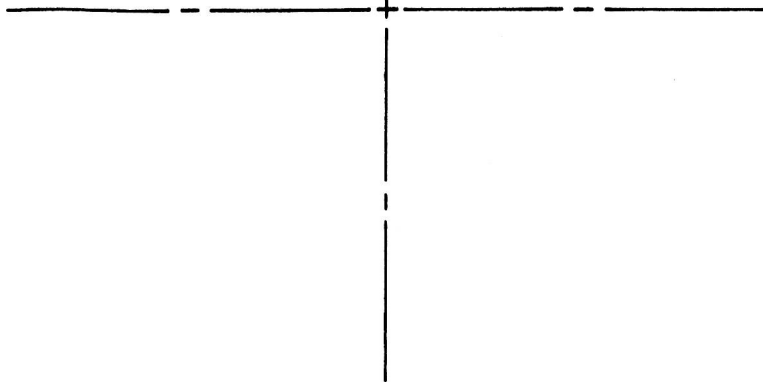
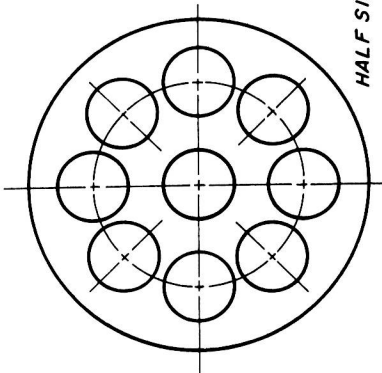
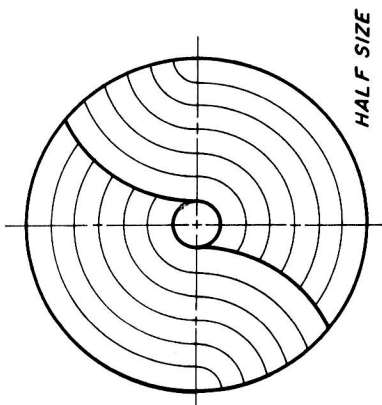
DATE _____

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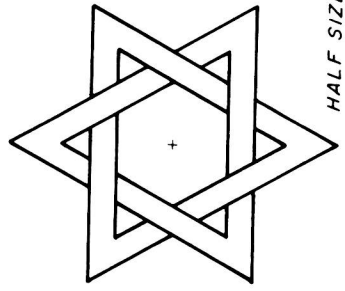
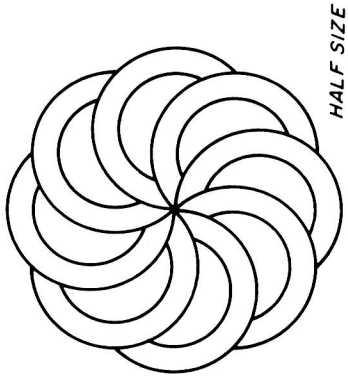
BASIC TECHNIQUES

5

Each figure is shown half size.
 Draw each figure full size on the centerlines provided.
 Use thick and thin black lines.



Each figure is shown half size.
 Draw each figure full size on the center points provided.
 Use thick and thin black lines.



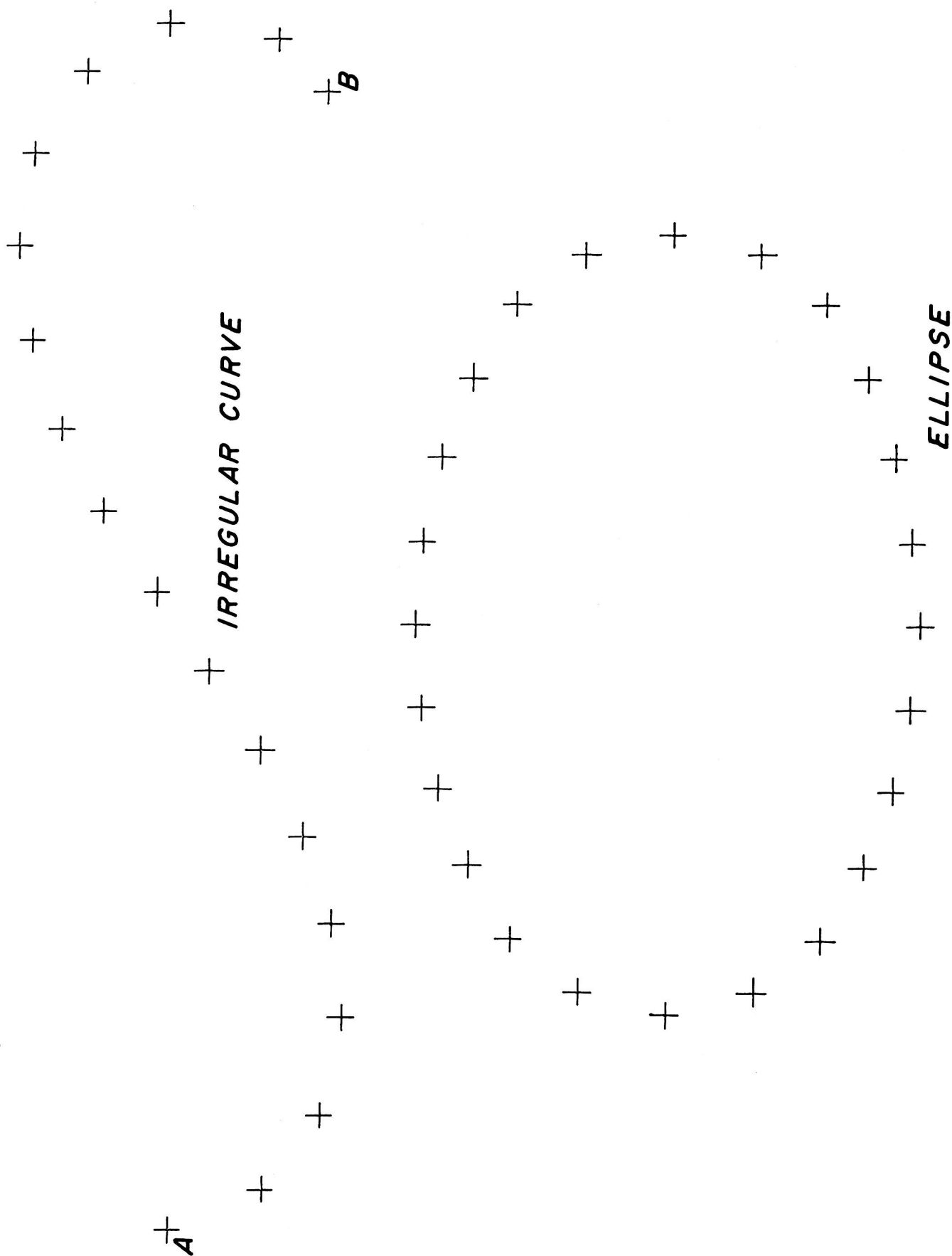
+

+

FULL SIZE

FULL SIZE

Carefully connect the given points below using an irregular curve to draw a smooth irregular curve and ellipse.
Use a thick black continuous line.



DATE _____

DRAFTER _____

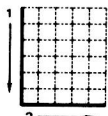
BASIC TECHNIQUES

8

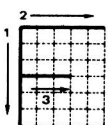
With a sharp 2H lead, practice forming each letter on the guide lines provided.
Use the suggested strokes as illustrated at the left.



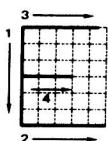
Two sets of three horizontal guide lines (top, middle, bottom) for practicing the letter 'I'.



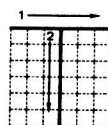
Two sets of three horizontal guide lines for practicing the letter 'L'.



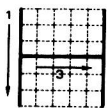
Two sets of three horizontal guide lines for practicing the letter 'E'.



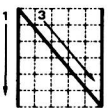
Two sets of three horizontal guide lines for practicing the letter 'F'.



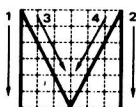
Two sets of three horizontal guide lines for practicing the letter 'T'.



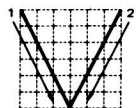
Two sets of three horizontal guide lines for practicing the letter 'H'.



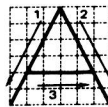
Two sets of three horizontal guide lines for practicing the letter 'A'.



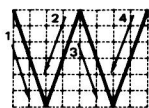
Two sets of three horizontal guide lines for practicing the letter 'V'.



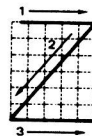
Two sets of three horizontal guide lines for practicing the letter 'W'.



Two sets of three horizontal guide lines for practicing the letter 'M'.

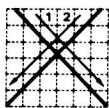


Two sets of three horizontal guide lines for practicing the letter 'N'.

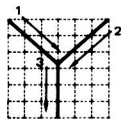


Two sets of three horizontal guide lines for practicing the letter 'Z'.

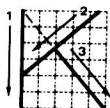
With a sharp 2H lead, practice forming each letter or number on the guide lines provided.
Use the suggested strokes as illustrated at the left.



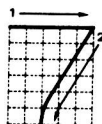
Two sets of horizontal guide lines for practicing the letter X.



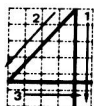
Two sets of horizontal guide lines for practicing the letter Y.



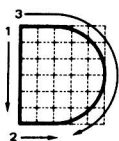
Two sets of horizontal guide lines for practicing the letter Z.



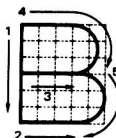
Two sets of horizontal guide lines for practicing the number 7.



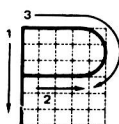
Two sets of horizontal guide lines for practicing the number 4.



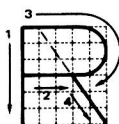
Two sets of horizontal guide lines for practicing the letter D.



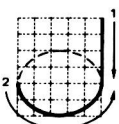
Two sets of horizontal guide lines for practicing the letter B.



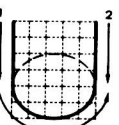
Two sets of horizontal guide lines for practicing the letter P.



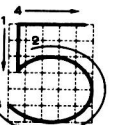
Two sets of horizontal guide lines for practicing the letter R.



Two sets of horizontal guide lines for practicing the letter U.

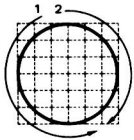


Two sets of horizontal guide lines for practicing the letter V.

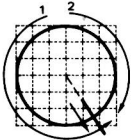


Two sets of horizontal guide lines for practicing the letter S.

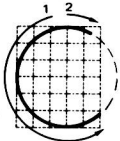
With a sharp 2H lead, practice forming each letter or number on the guide lines provided.
Use the suggested strokes as illustrated at the left.



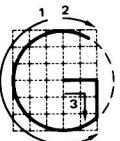
Two horizontal lines for practicing the letter O.



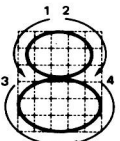
Two horizontal lines for practicing the letter Q.



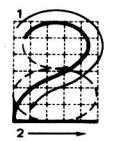
Two horizontal lines for practicing the letter C.



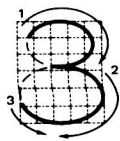
Two horizontal lines for practicing the letter G.



Two horizontal lines for practicing the letter B.



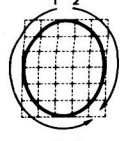
Two horizontal lines for practicing the letter S.



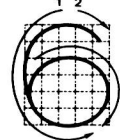
Two horizontal lines for practicing the letter E.



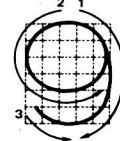
Two horizontal lines for practicing the letter F.



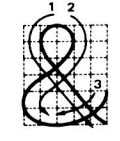
Two horizontal lines for practicing the letter D.



Two horizontal lines for practicing the letter K.

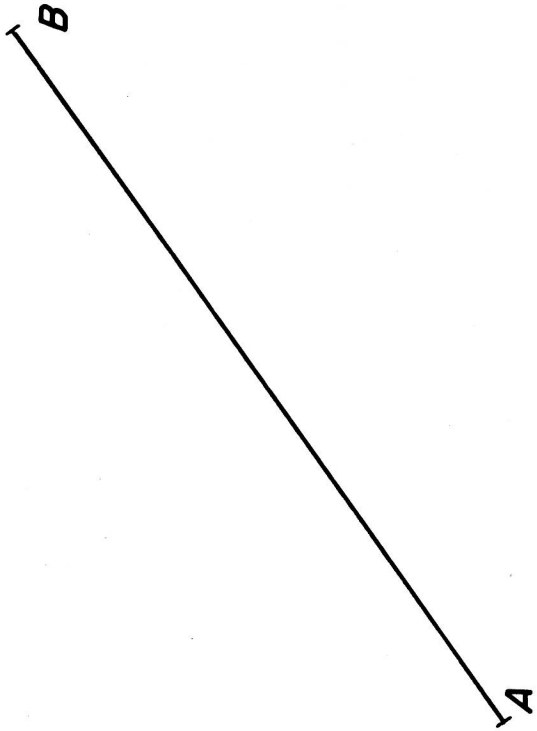


Two horizontal lines for practicing the letter L.



Two horizontal lines for practicing the letter T.

Bisect line A-B.



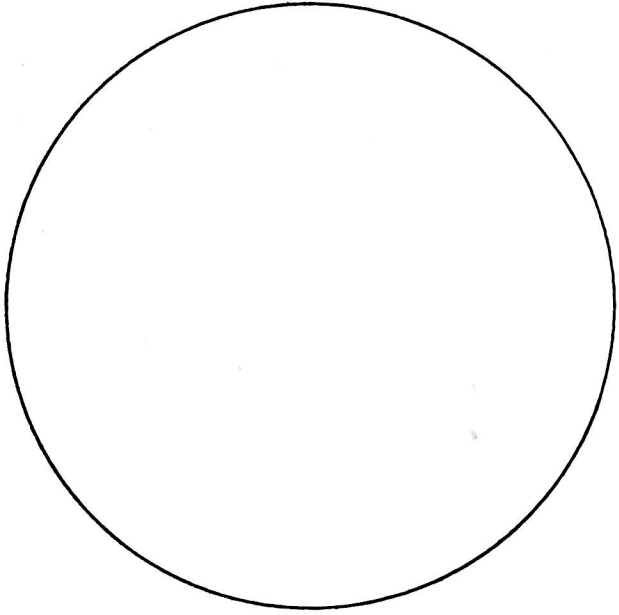
Draw an arc that will pass through points C-D-E.

D+

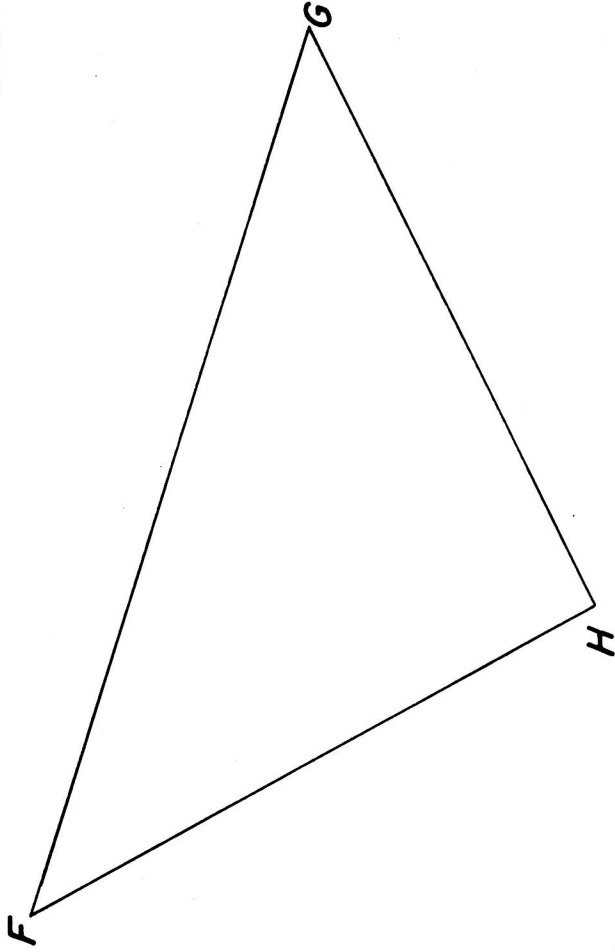
+E

C+

Find the center
of this circle.



Bisect angles H-F-G, F-G-H, and G-H-F
to find the center of the triangle.



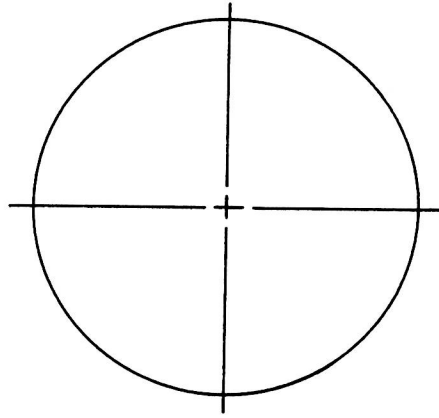
DATE _____

DRAFTER _____

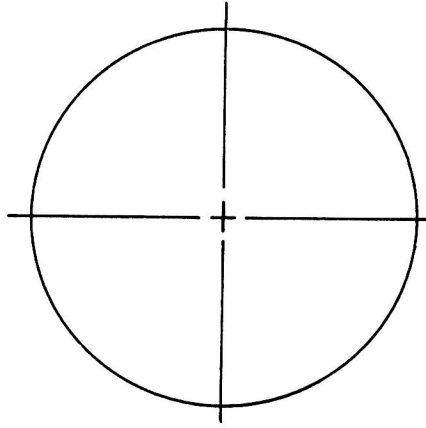
GEOMETRIC CONSTRUCTION

12

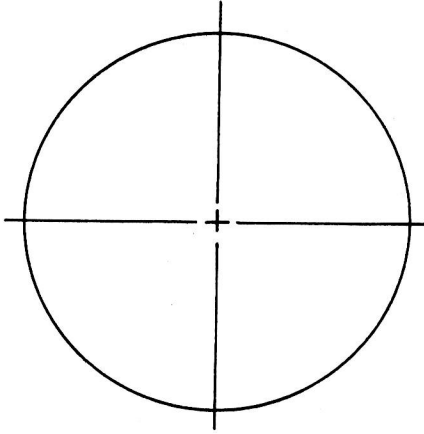
Using the six diameters below, construct regular polygons with the indicated number of sides.
Use the diameter as the distance across the flats.



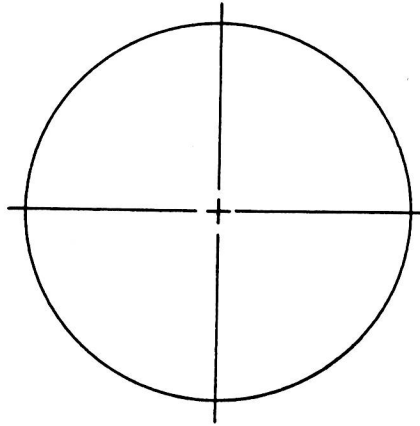
3 SIDES (TRIANGLE)



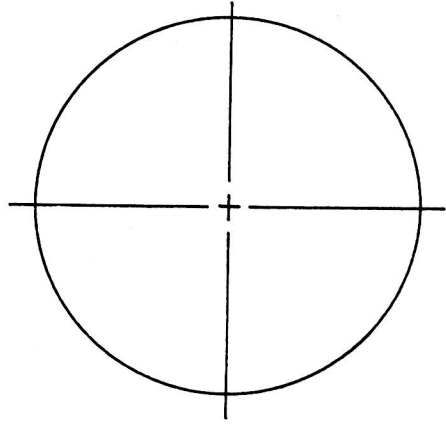
4 SIDES (SQUARE)



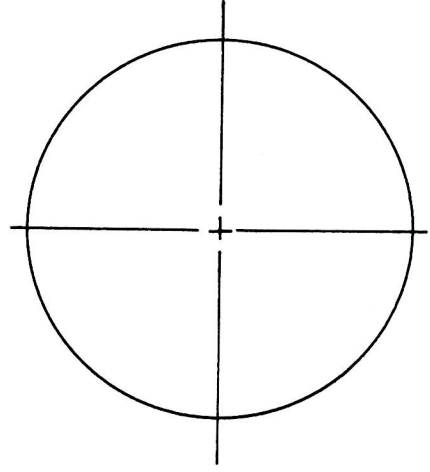
5 SIDES (PENTAGON)



6 SIDES (HEXAGON)



8 SIDES (OCTAGON)



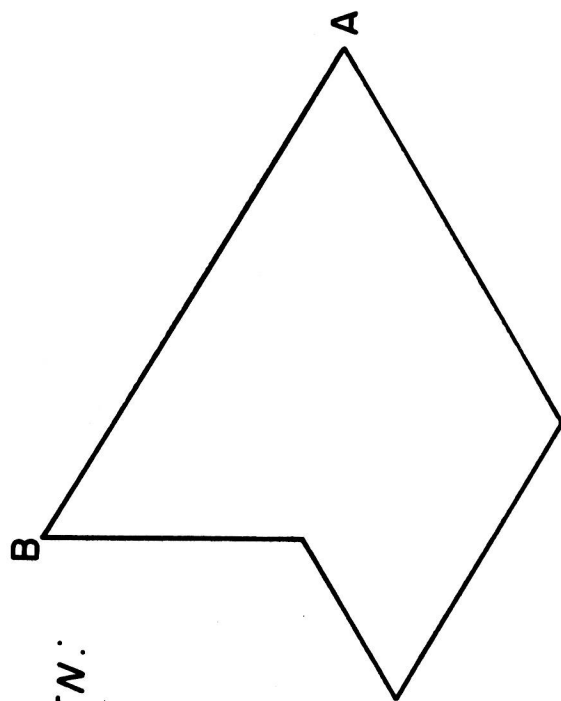
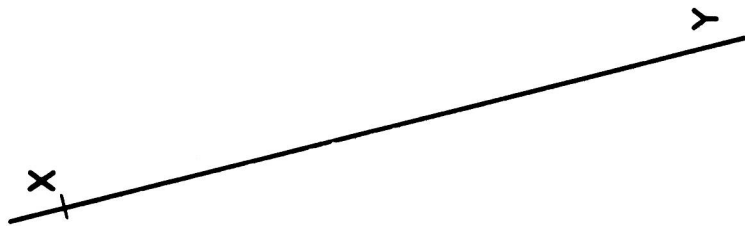
12 SIDES

DATE _____

DRAFTER _____

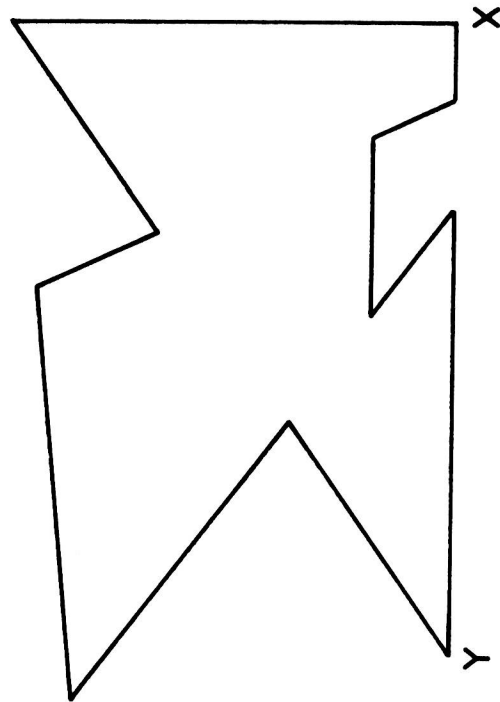
GEOMETRIC CONSTRUCTION

Transfer each of the two closed figures from the line given and from points A-B and X-Y.
Show all construction work.



GIVEN:

GIVEN:



DATE	DRAFTER
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