1) Tell whether a point, a line, or a plane is illustrated by the tip of a pen.

2) Tell whether a point, a line, or a plane is illustrated by the edge of a textbook.

3) $\overline{PQ}$ has only one endpoint. **TRUE FALSE**
   A) True   B) False

4) A line segment has exactly one midpoint. **TRUE FALSE**
   A) False   B) True

Question 5 refers to the following:
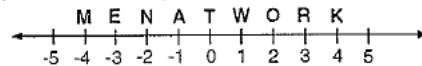
In the diagram below, points P, N, and Q are collinear. Indicate whether the given statement is True or False.

Plane B

P
K
N
Q
Plane A
• M
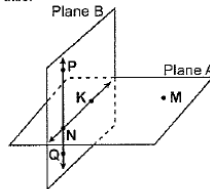
5) Points P, K, N, and Q are coplanar. **TRUE FALSE**
   A) True   B) False

Point

Line

Question 6 refers to the following:

Use the figure below to name a segment, ray, or point that best completes the given statement.

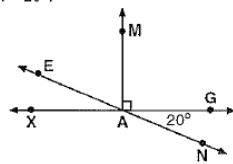M E N A T W O R K
-5 -4 -3 -2 -1 0 1 2 3 4 5

6) the ray opposite $\overrightarrow{TK}$ is

$\overrightarrow{TM}$

Question 7 refers to the following:

In the diagram below, XG↔ and EN↔ intersect at A, AM→⊥XG↔, and m∠GAN = 20°.

M
E
G
X   A   20°
N

7) Name two right angles.

<MAG,

Question 8 refers to the following:

Given the line segments illustrated below.

$$\underline{\hspace{1cm}} \quad \underline{\hspace{1.5cm}} \quad \underline{\hspace{1.5cm}}$$
$$x \qquad\quad y \qquad\qquad z$$

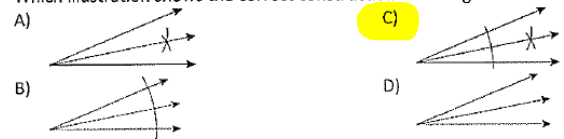8) Construct a line segment whose length is $y + z$.
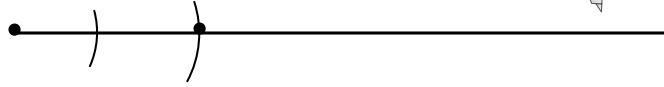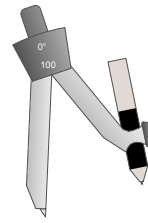
Question 9 refers to the following:
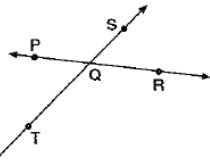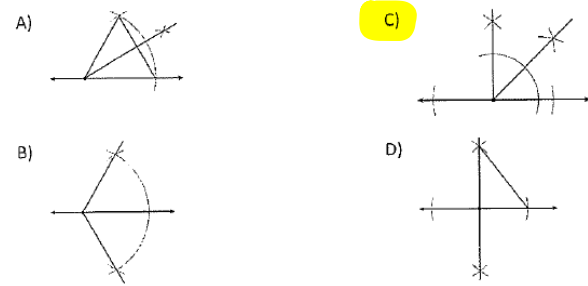
9) Points P, Q, and R are collinear. **TRUE**
   FALSE
   A) True   B) False

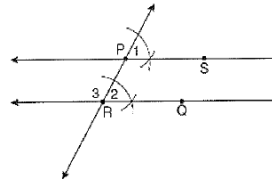10. Which illustration shows the correct construction of an angle bisector?
    A)   C)

    B)   D)

11. Which diagram shows the construction of a 45° angle?
    A)   C)

    B)   D)

12. The diagram below illustrates the construction of $\overleftrightarrow{PS}$ parallel to $\overrightarrow{RQ}$ through point P.
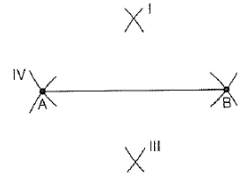
Which statement justifies this construction?

A) $m\angle 1 = m\angle 2$

B) $m\angle 1 = m\angle 3$

C) $\overline{PR} \cong \overline{RQ}$

D) $\overline{PS} \cong \overline{RQ}$

13. Line segment AB is shown in the diagram.
Which two sets of construction marks, labeled I, II, III, and IV, are part of the construction of the perpendicular bisector of line segment AB?

A) I and II
B) I and III
C) II and III
D) II and IV

14. A student is told that $\overline{AB}$ and $\overline{CD}$ have equal lengths. The student writes down $\overline{AB} = \overline{CD}$. What is wrong with this mathematical statement?

The symbols are incorrect.
Figures are ≅, numbers (lengths) are =. Either use AB = CD or $\overline{AB} \cong \overline{CD}$.

15. One step in a construction uses the endpoints of $\overline{AB}$ to create arcs with the same radii. The arcs intersect above and below the segment. What is the relationship of $\overline{AB}$ and the line connecting the points of intersection of these arcs?

A) collinear
B) congruent
C) parallel
D) Perpendicular

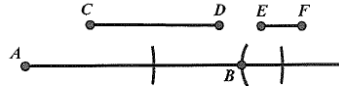16. The diagram below shows the construction of the perpendicular bisector of $\overline{AB}$.
Which statement is *not* true?

A) $AC = CB$
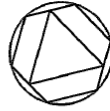B) $CB = \frac{1}{2} AB$
C) $AC = 2AB$
D) $AC + CB = AB$
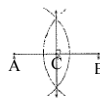
17. What is the best description for the distance from Point A to Point B?

A) CD + 2EF   B) CD - EF

C) 2CD - EF   D) 2CD + EF

18. Given the diagram, determine the description which is false.

    A) The circle circumscribes the hexagon.

    B) The hexagon circumscribes the triangle.

    C) The hexagon is inscribed in the circle.

    D) The triangle is inscribed in the circle.

19. Jeff is constructing the angle bisector of ∠DBE. What is the next step? Be very specific as to what he should do next.
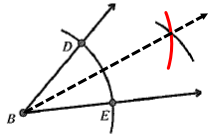
Without changing the setting, place the needle on D.
Make an arc to intersect the arc already there.
Connect B to the place where the arcs intersect.

20. Lindsay notices that while doing a construction a 'hidden' shape appeared – a rhombus.
Where is the rhombus hidden in this shape?
Draw in the segments that form the rhombus and explain why must it be a rhombus?
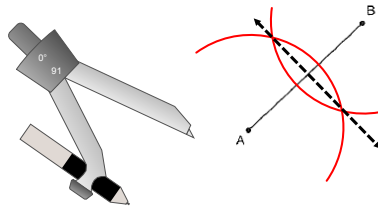
The shape is a rhombus because all sides are congruent.
The sides are congruent because they are radii of congruent circles.
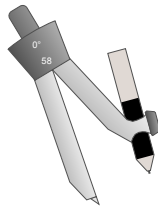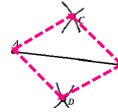
21. Using a compass and straightedge, construct the bisector of the angle shown below. [*Leave all construction marks.*]
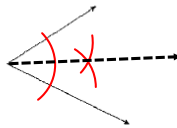
22. Using a compass and straightedge, construct the perpendicular bisector of $\overline{AB}$. [Leave all construction marks.]

23. Using a compass and straightedge, and $\overline{AB}$ below, construct an equilateral triangle with all sides congruent to $\overline{AB}$. [Leave all construction marks.]

A   B

24. Using a compass and straightedge, and $\overline{AB}$ below, construct $2.25\ \overline{AB}$ [Leave all construction marks.]

A   B

25. On the ray drawn below, using a compass and straightedge, construct an equilateral triangle with a vertex at R. The length of a side of the triangle must be equal to a length of the diagonal of rectangle $ABCD$.

D   C

A   B

R

26. On the diagram below, use a compass and straightedge to construct an angle which is half of $\angle ABC$. [Leave all construction marks.]

A

B   C

27. Use a compass and straightedge to construct an inscribed square in circle T shown below. [Leave all construction marks.]

28. Using a compass and straightedge, construct an altitude of triangle ABC below. [Leave all construction marks.]
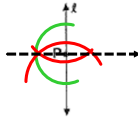
A

B   C

29. Construct an equilateral triangle inscribed in circle *T* shown below. [Leave all construction marks.]
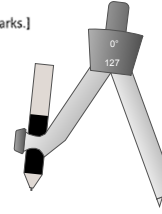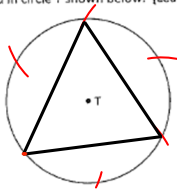
30. Construct an angle congruent to <M.
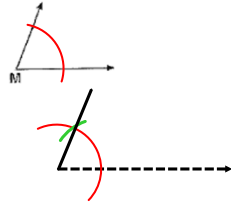
31. Construct a line through P perpendicular to line *l*

32. Construct a lint through A that is parallel to $\overline{BC}$