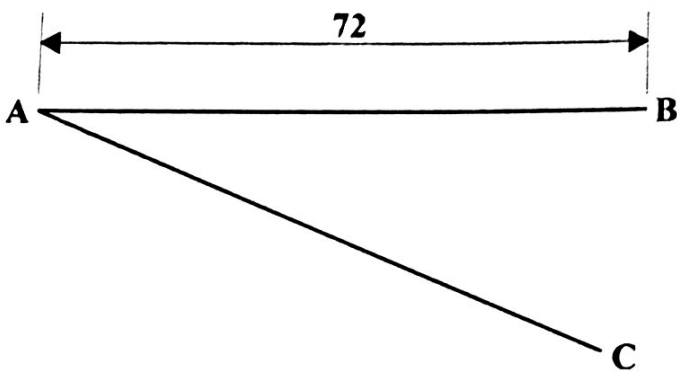


1. If a triangle with a perimeter of 198 mm is constructed with sides in the ratio of 2:3:4, then the SHORTEST side is

- (A) exactly 84 mm
- (B) exactly 64 mm
- (C) exactly 44 mm
- (D) less than 44 mm

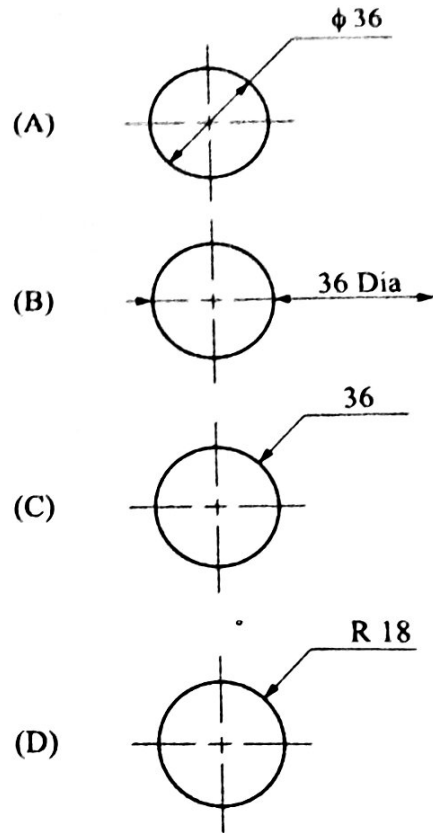
Item 2 refers to the following diagram.



2. In the drawing above, in order to divide AB in the ratio 4:5:3 by proportional divisions, it is necessary to first

- (A) divide 72 by 6
- (B) step off 12 equal divisions on AB
- (C) step off 12 equal divisions on AC
- (D) measure AB and divide it into 3 parts

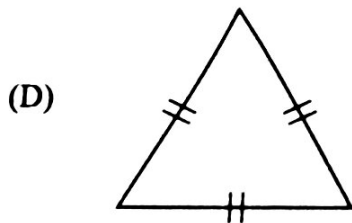
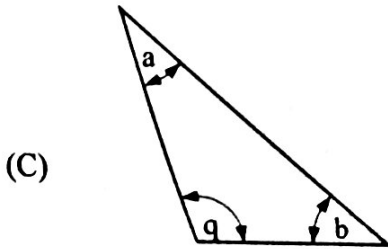
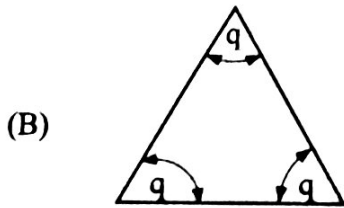
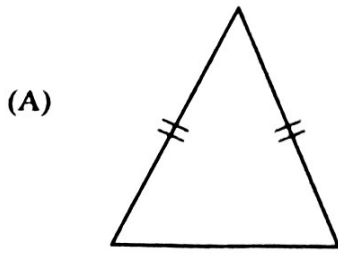
3. Which of the following circles is correctly dimensioned?



4. If a scale of 1:100 is used in a drawing exercise, then an object 2 000 mm long would be represented on paper as

- (A) 200 mm
- (B) 100 mm
- (C) 50 mm
- (D) 20 mm

5. Which of the following drawings represents a scalene triangle?



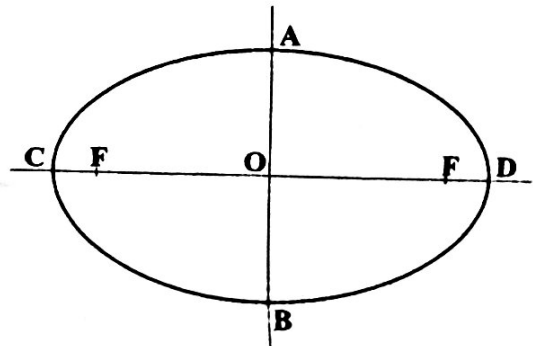
6. A deep laceration to the arm by a sharp tool requires the victim to

- (A) run to the hospital and get medical help
- (B) ignore the laceration and allow it to heal naturally
- (C) apply a large bandage and pressure to the laceration
- (D) apply surgical alcohol and allow the blood to cool down naturally

7. If the perimeter of a rhombus is 152 mm, then the length of one side is

- (A) 33 mm
- (B) 38 mm
- (C) 66 mm
- (D) 76 mm

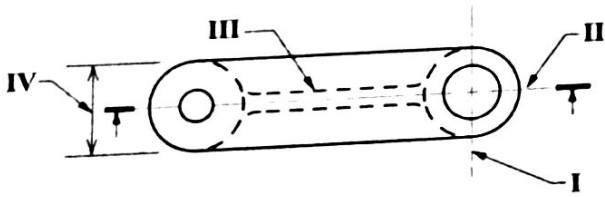
Item 8 refers to the following diagram.



8. AB is equal to

- (A) minor axis
- (B) major axis
- (C) $\frac{1}{2}$ major axis
- (D) $\frac{1}{2}$ minor axis

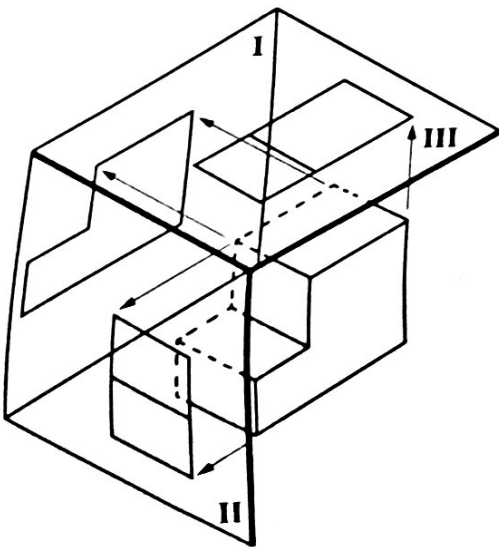
Item 9 refers to the following diagram.



9. In the diagram above, which of the labelled types of line indicates a cutting plane line?

- (A) I
- (B) II
- (C) III
- (D) IV

Item 10 refers to the following diagram which shows the orthographic projection of a block.



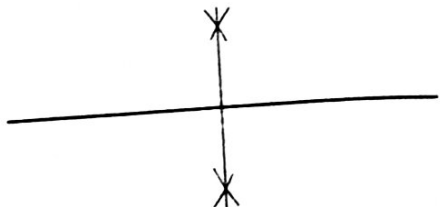
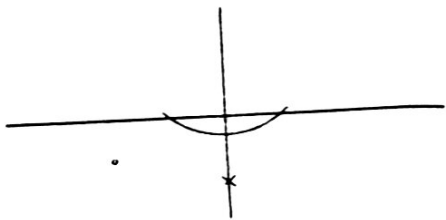
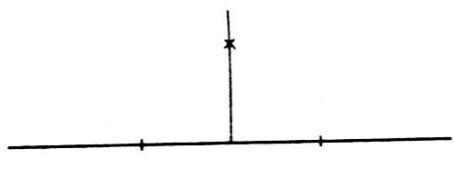
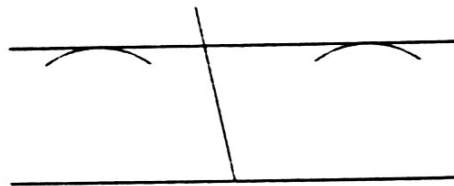
10. On which of the following planes is the 'plan' shown?

- (A) I only
- (B) II only
- (C) III only
- (D) I and III only

11. Which of the following methods of drawing an ellipse involves constructing a rectangle?

- (A) Trammel
- (B) Intersecting arcs
- (C) Concentric circle
- (D) Intersecting line

12. Which of the following illustrates how to bisect a straight line?

- (A) 
- (B) 
- (C) 
- (D) 

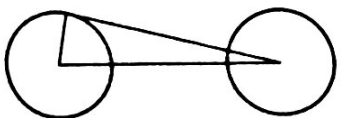
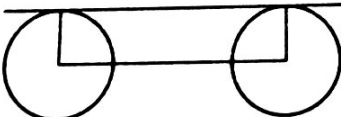
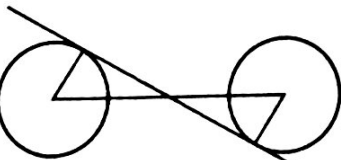
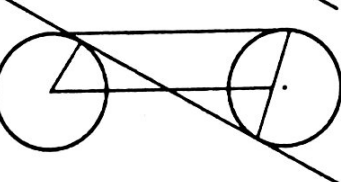
13. A development of an object is a drawing showing

- (A) one view
- (B) two views
- (C) a pictorial sketch
- (D) the unfolding of the surfaces

14. Which of the following statements BEST describes an equilateral triangle?

- (A) All the sides and angles are equal.
- (B) All the sides are equal but the angles are unequal.
- (C) All the sides are unequal but the angles are equal.
- (D) Neither the sides nor the angles are equal.

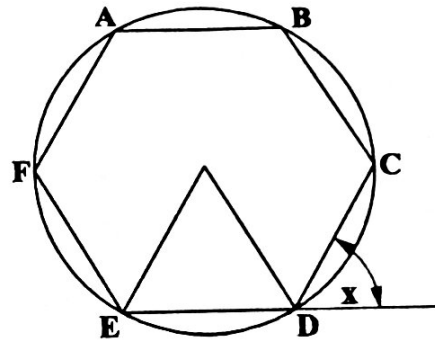
15. Which of the following drawings illustrates an internal tangent?

- (A) 
- (B) 
- (C) 
- (D) 

16. A quadrilateral with ONE pair of parallel sides is a

- (A) rhombus
- (B) rectangle
- (C) trapezium
- (D) parallelogram

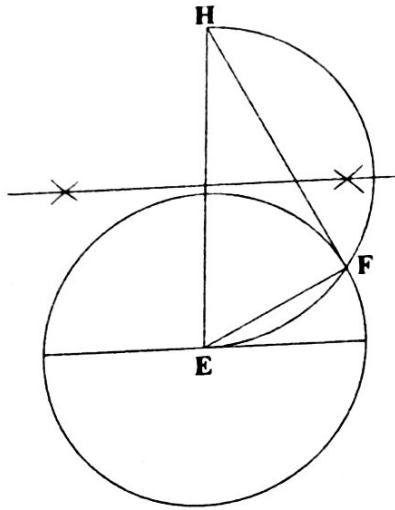
Item 17 refers to the following figure.



17. In the figure above, ABCDEF is a regular hexagon. What is the value of angle x?

- (A) 50°
- (B) 60°
- (C) 70°
- (D) 80°

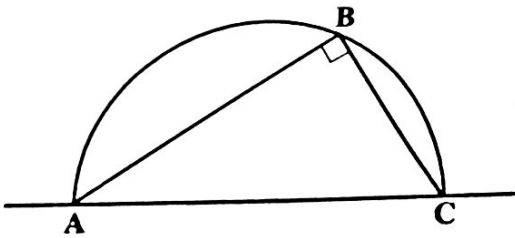
Item 18 refers to the diagram below.



18. In the diagram above, the angle EFH is

- (A) 30°
- (B) 45°
- (C) 60°
- (D) 90°

Item 19 refers to the following diagram.



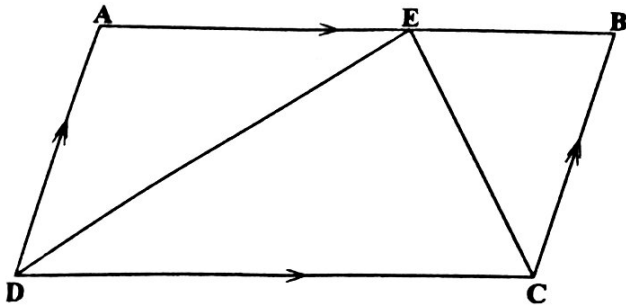
19. The diagram above shows the construction of a triangle when given the

- (A) altitude and vertical angle
- (B) hypotenuse and one angle
- (C) altitude and the base angles
- (D) perimeter and vertical height

20. Given a point, P, on the circumference of a circle, which of the diagrams below BEST demonstrates the principle of constructing a tangent to a circle through the given point?

- (A)
- (B)
- (C)
- (D)

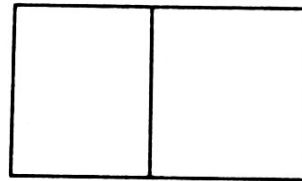
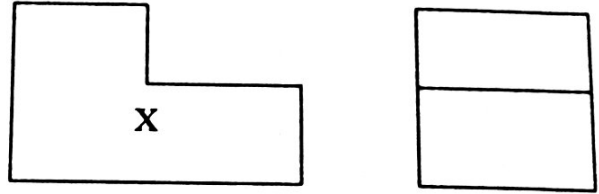
Item 21 refers to the diagram below.



21. In the diagram above, ABCD is a parallelogram. The triangle CDE is equal in area to

- (A) ABCD
- (B) $\frac{1}{4}$ ABCD
- (C) $\frac{1}{3}$ ABCD
- (D) $\frac{1}{2}$ ABCD

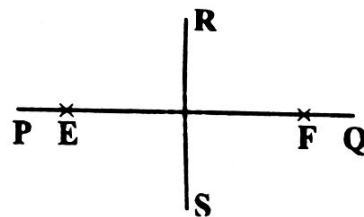
Item 22 refers to the following figure.



22. In first-angle projection, the above view 'X' represents the

- (A) top
- (B) front
- (C) left side
- (D) right side

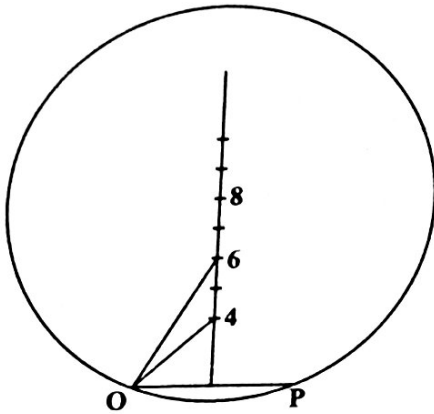
Item 23 refers to the following diagram.



23. The diagram above shows part of the construction necessary for drawing an ellipse. What term describes the points E and F?

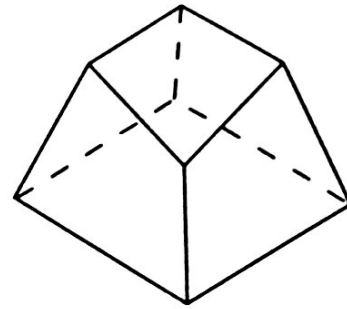
- (A) Major axes
- (B) Minor axes
- (C) Focal
- (D) Normal

Item 24 refers to the following drawing.



24. Which of the following polygons can be constructed in the circle above that has a radius of $8P$?
- (A) A hexagon
 - (B) A nonagon
 - (C) A pentagon
 - (D) An octagon

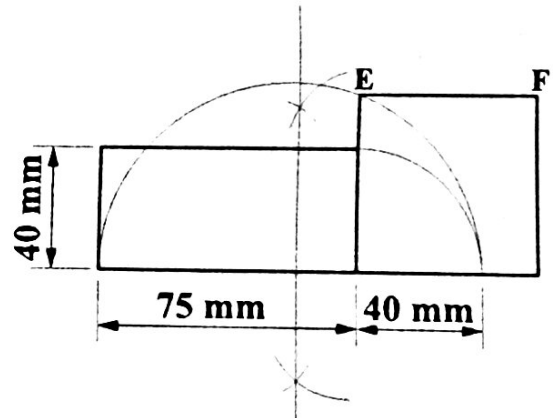
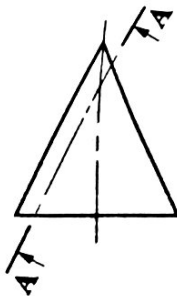
Item 26 refers to the following figure.



26. The figure illustrated above represents
- (A) a part section of a right truncated pyramid
 - (B) an oblique rectangular pyramid
 - (C) a truncated square pyramid
 - (D) a rectangular pyramid

Item 27 refers to the following diagram of a square equal in area to a rectangle.

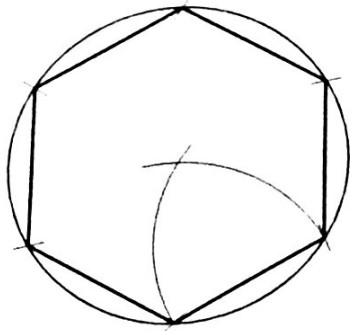
Item 25 refers to the following diagram.



25. The conic section at A–A above appears as
- (A) a circle
 - (B) a triangle
 - (C) an ellipse
 - (D) a parabola

27. What is the length of EF in the construction above?
- (A) 15 mm
 - (B) 35 mm
 - (C) 55 mm
 - (D) 75 mm

Item 28 refers to the following diagram.



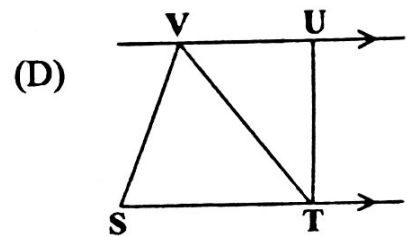
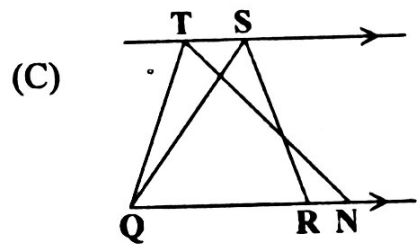
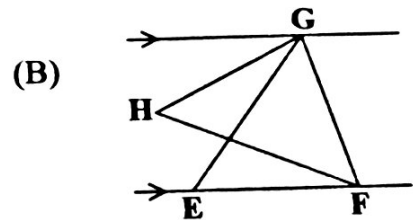
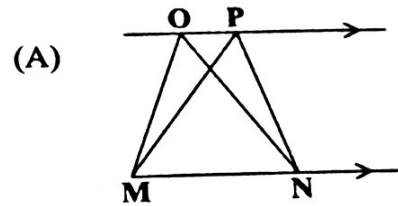
28. The diagram above shows the construction of a regular hexagon, given the

- (A) length of the sides
- (B) perimeter and altitude
- (C) length of the diagonals
- (D) perpendicular distance between the sides

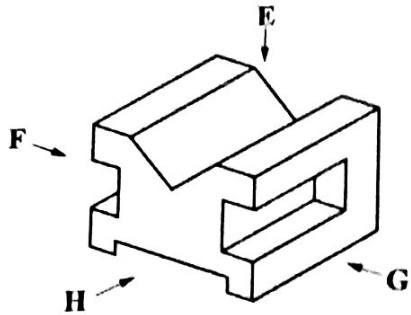
29. A materials safety data sheet provides guidance on the

- (A) art of drawing safety materials on data sheets
- (B) safe handling of potential hazards in the home
- (C) safe handling of potential hazards in the workplace
- (D) art of safely handling data sheets when labeling materials

30. Which of the following drawings shows triangles of equal area between parallel lines?



Item 31 refers to the diagram below.



31. Using orthographic projection for the diagram above with view G as the front, the end view H will be

- (A)
- (B)
- (C)
- (D)

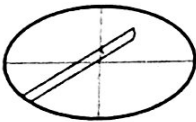

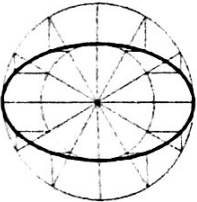
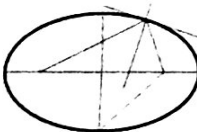
32. The bisector of the line AB is correctly shown by the drawing in

- (A)
- (B)
- (C)
- (D)

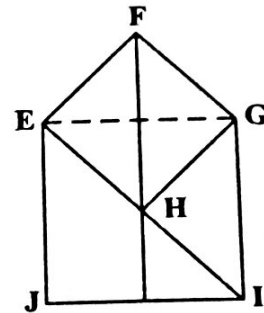
33. When preparing a drawing sheet, ALL horizontal lines are drawn with a

- (A) scale rule
- (B) tee-square
- (C) 45° set square
- (D) 30°–60° set square

34. Which of the following illustrates the normal of an ellipse?

- (A) 
- (B) 
- (C) 
- (D) 

Item 35 refers to the diagram below.



35. In the diagram above, the ratio of the area of EFGH to that of EGIJ is

- (A) 1:4
- (B) 1:3
- (C) 1:2
- (D) 2:3

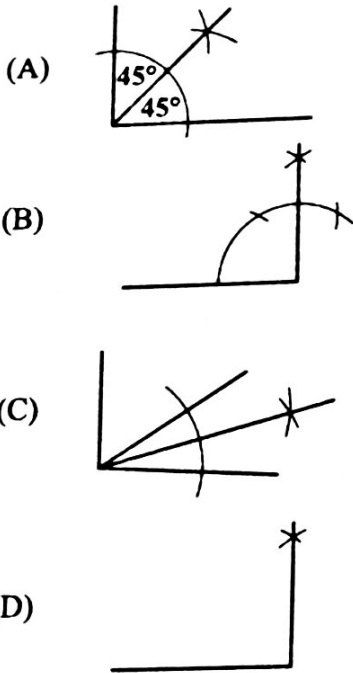
Item 36 refers to the following drawing.



36. The diagram above shows the development of a truncated

- (A) cylindrical pipe
- (B) rectangular pipe
- (C) hexagonal prism
- (D) hexagonal pyramid

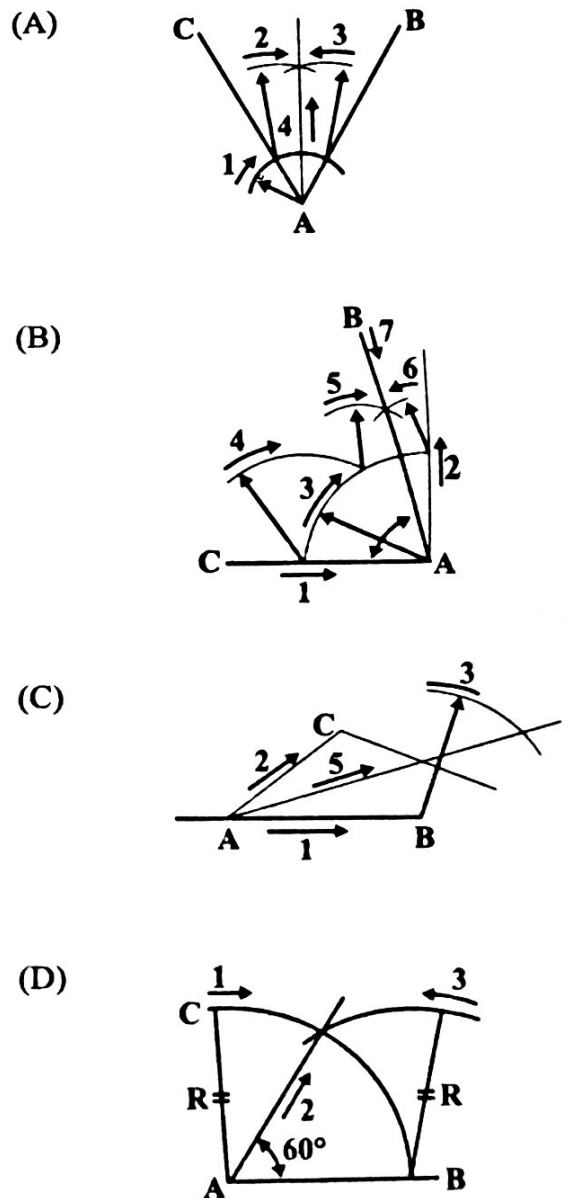
37. Which of the following constructions shows the procedure for drawing a perpendicular at the end of a line?



39. Which of the following instruments is used to quickly draw such items as bolt heads, nuts, electrical and architectural symbols?

- (A) Stencil
- (B) Protractor
- (C) Radius curve
- (D) Beam compass

40. Which of the following constructions shows the proper method of bisecting an angle?



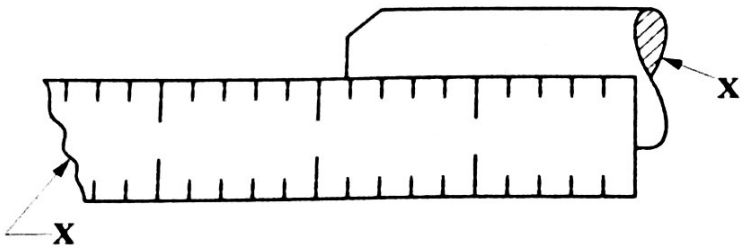
38. Three sequential steps for drawing a tangent to a circle from any point outside the circle are

- I. bisect the line which joins centre to point and draw a semicircle.
- II. draw a circle and choose a point outside the circle.
- III. join the centre to the point outside the circle.

The correct order of the three steps is

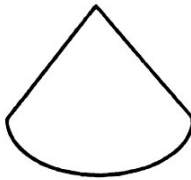
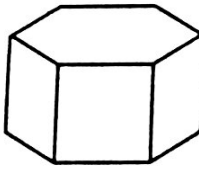
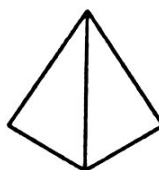
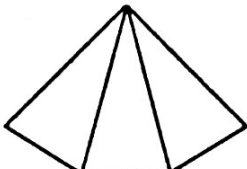
- (A) I, II, III
- (B) II, III, I
- (C) I, III, II
- (D) III, II, I

Item 41 refers to the following diagram.

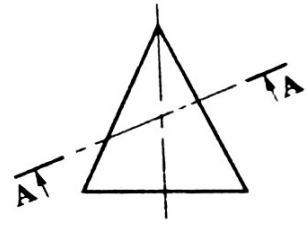


41. The lines marked X on the diagram above are symbols which indicate
- (A) the axes of symmetrical parts
 - (B) that the edges are to be measured
 - (C) that sections are to be removed
 - (D) the continuation of the objects

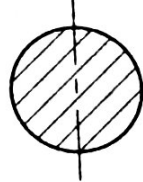

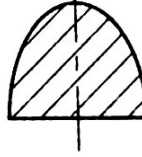

42. Which of the following is a view of a right square pyramid?

- (A) 
- (B) 
- (C) 
- (D) 

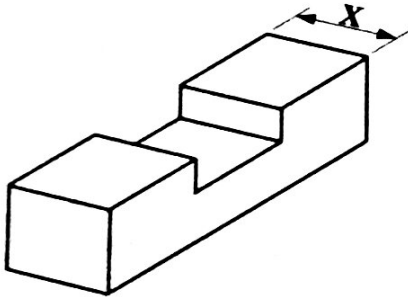
Item 43 refers to the following construction.



43. The true shape of the cut surface 'A-A' of the right cone above is

- (A) 
- (B) 
- (C) 
- (D) 

Item 44 refers to the following construction.



44. The drawing above is to be reproduced in third-angle projection. On which of the following views can the distance, X, be measured?

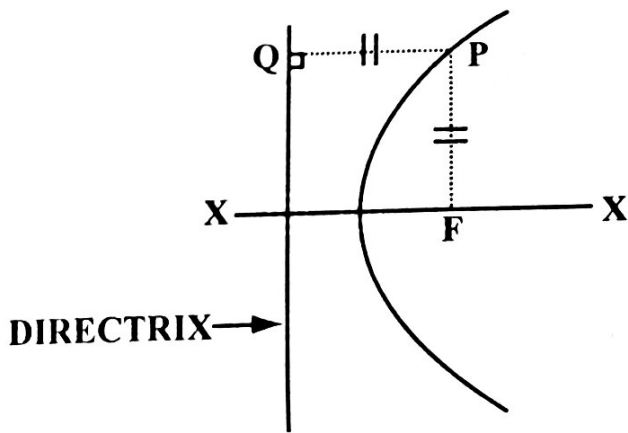
- I. End
 - II. Plan
 - III. Front
- (A) I and II only
 - (B) I and III only
 - (C) II and III only
 - (D) I, II and III

45. Which of the following diagrams illustrates the procedure for drawing a perpendicular to a line from a point outside the line?

- (A)
- (B)
- (C)
- (D)

46. In technical drawing the phrase 'curves meeting each other tangentially' means that the curves
- (A) will meet smoothly
 - (B) will not blend properly
 - (C) will meet at right angles
 - (D) have sufficient clearance

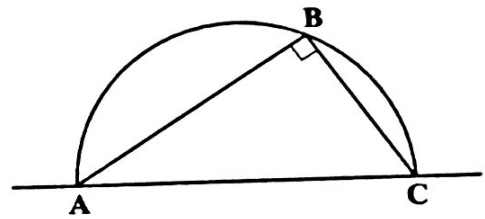
Item 47 refers to the following diagram.



47. Which of the following is the eccentricity of FP:PQ in the drawing above?
- (A) 1:1
 - (B) 1:2
 - (C) 1:3
 - (D) 1:4

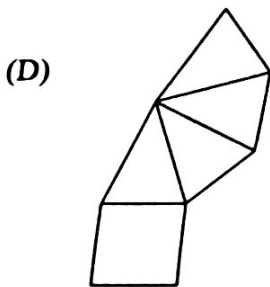
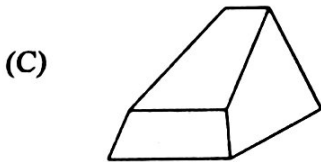
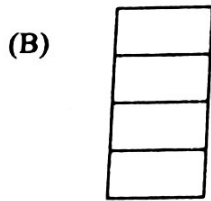
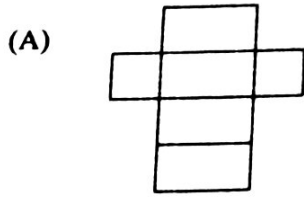
48. When a cube is drawn in isometric projection, each of its sides is a
- (A) rectangle
 - (B) rhombus
 - (C) triangle
 - (D) square

Item 49 refers to the following diagram.



49. Triangle ABC is drawn within a semicircle of diameter 100 mm. AB is equal to 80 mm, what is the length of BC?
- (A) 60 mm
 - (B) 50 mm
 - (C) 36 mm
 - (D) 32 mm

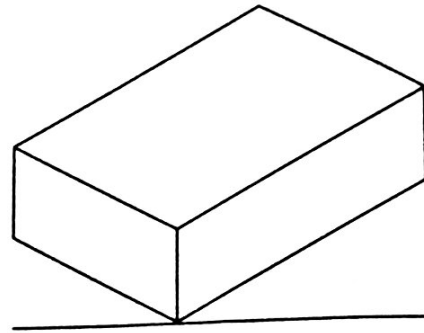
50. Which of the following shows the development of a square pyramid?



51. Construction lines must be drawn

- (A) dark
- (B) light
- (C) chain
- (D) broken

Item 52 refers to the diagram below.



52. In which of the following projections is the diagram illustrated above drawn?

- (A) Orthographic
- (B) First angle
- (C) Isometric
- (D) Oblique

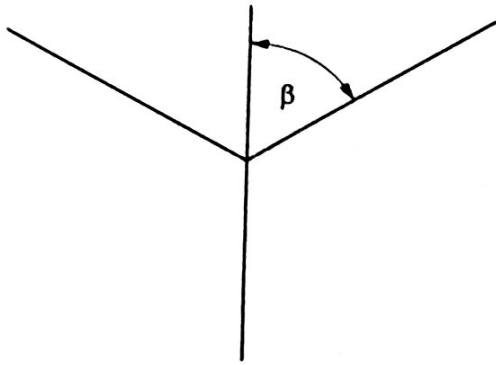
53. If a rectangle with sides 100 mm and 75 mm is constructed accurately, then each of the diagonals should measure

- (A) 125 mm
- (B) 120 mm
- (C) 115 mm
- (D) 110 mm

54. Which of the following statements provides accurate information about dimension lines?

- (A) Dimension lines should be thick full lines.
- (B) Construction lines may be used as dimension lines.
- (C) Extension lines may be used as dimension lines.
- (D) Dimension lines are placed between extension lines.

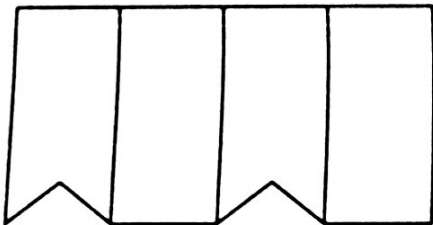
Item 55 refers to the following diagram which shows the intersection of three isometric axes.



55. What is the value of the angle β ?

- (A) 30°
- (B) 45°
- (C) 60°
- (D) 120°

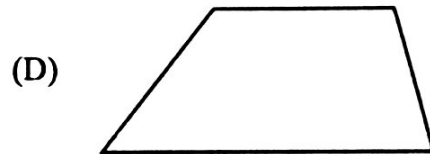
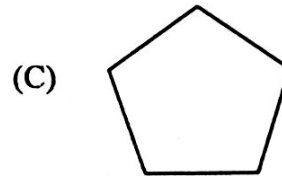
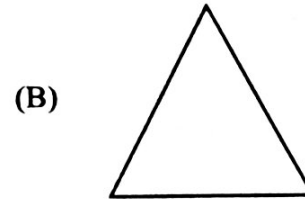
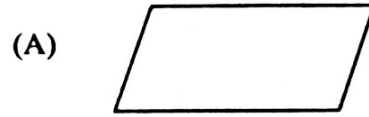
Item 56 refers to the following diagram.



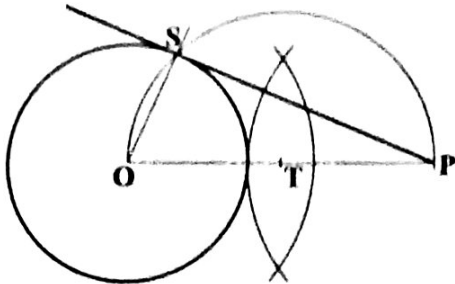
56. The diagram above shows the development of a

- (A) right cone cut at an angle to the base
- (B) square to round transitional piece
- (C) right cone cut parallel to the base
- (D) square transitional piece

57. Which of the following drawings is a trapezium?



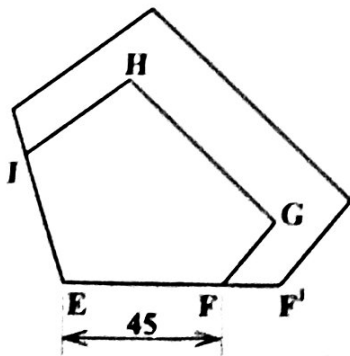
Item 58 refers to the following diagram.



58. The method of construction shown in the diagram above is used to

- (A) draw a tangent to a circle through a given point, S
- (B) draw a tangent to a circle from a given point, P
- (C) show that any angle in the semicircle is 90°
- (D) show that the area of the semicircle is half that of the circle

Item 59 refers to the following diagram.



59. In the diagram above, EF to EF' is in the ratio 3:4. The length of EF' is

- (A) 15
- (B) 30
- (C) 60
- (D) 90

60. Which of the following layouts represents the correct orthographic projection of a shaped block?

