CHAPTER WISE REVISION

Number System

1. Write the greatest and the smallest numbers of six digits.

2. Write the whole number whose successor is 54920.

3. Write the whole number whose predecessor is 2409.

4. Write all the numbers greater than 4000 and formed by the following digits, without repetition of any digit.
   (a) 1, 2, 5 and 3   (b) 0, 5, 3 and 2.

The Integers

5. (a) If possible, write the smallest integer.
   (b) If possible, write the greatest integer.

6. (a) Write −12, 8, −7, 0, −8 and 5 in ascending order.
   (b) Write 8, −3, 3, −7, 1 and 5 in descending order.

7. Evaluate :
   (a) $|8| - |-7| + |3|$ (b) $|+25| + |-8| - |+2|$

8. (a) What should be added to 5 to get −5 ?
   (b) What would be subtracted from 12 to get −15?

The Number Line

9. Use a number line to :
   (a) add 5 and 3   (b) add 5 and −3
   (c) add − 5 and −3   (d) add − 5 and 3

10. Use a number line to :
    (a) subtract 4 from 2   (b) subtract 2 from 4
    (c) subtract 2 from −4 (d) subtract −2 from −4
    (e) subtract −2 from 4

11. Evaluate using a number line :
    (a) $(-5) + (+2)$ (b) $(+6) - (-3)$
    (c) $0 + (-3)$ (d) $(+5) - (0)$
    (e) $(-6) - (-3)$

12. Fill in the blanks.
    (a) 8 is .... −3 and −8 is 3
    (b) −7 is .... 0 and 7 is 0
    (c) 4 is .... 2 and −4 is .... −2

Factors and Multiples

13. Make pairs of co-prime numbers from 25, 42 and 21.

14. Find the H.C.F. of 240, 336, 432 and 528.

15. Find the L.C.M. of 40, 144 and 180.

16. Find the smallest number which when divided by 20, 28 and 36 leaves 3 as remainder in each case.

Fractions

17. Find the numbers m and n, if : $\frac{2}{15} = \frac{m}{45} = \frac{12}{n}$.

18. Evaluate :
    (a) $3\frac{1}{4} \div \frac{5}{7} \times \frac{7}{26}$
    (b) $3\frac{1}{4} \div \frac{5}{7}$ of $\frac{7}{26}$.

19. Out of 300 pages of a book, $\frac{2}{5}$ are read on one day and $\frac{3}{10}$ on the other day. Find how many pages of the book are left unread.

20. Out of 300 pages of a book, $\frac{2}{5}$ are read on one day and $\frac{3}{10}$ of the remaining book on the other day. Find how many pages of the book are left unread.

Decimal Fractions

21. Evaluate : $32.89 \div 1.3 \times 2.4$.

22. The product of two decimals is 15·3. If one of them is 3·6, find the other.

23. If the cost of 6·3 kg sugar is ₹ 220.50, find the cost of :
    (a) 1 kg sugar   (b) 2·5 kg of sugar

Power and Roots

24. Evaluate :
    (a) -5^3 (b) $(-5)^3$ (c) $-2^4 \times (-2)^3$

25. Find the square root of :
    (a) $4^5 \times 5^2$ (b) $10 \times 2^3 \times 5$

26. Find the cube root of :
    (a) $8^2 \times 3^3$ (b) 24×3^2

27. Evaluate :
    (a) $\sqrt[3]{2 + \sqrt{36}}$ (b) $\sqrt[3]{3 + \sqrt[3]{125}}$
    (c) $\sqrt{33 - \sqrt{576}}$ (d) $\sqrt[3]{27}$

Ratio (Including Proportion)

28. Two quantities A and B are in the ratio 3 : 5. If A is 75, find B.

29. A ratio in the simplest form is 7 : 12.
    (a) If its antecedent is 112, find the consequent.
    (b) If its consequent is 156, find the antecedent.

30. Divide 560 in the ratio 13 : 7.

31. In a proportion; the first, the second and the fourth terms are 15, 24 and 13·6 respectively. Find the third term.

32. Verify whether the four numbers are in proportion or not :

    (a) 6, 42, 7 and 49   (b) 40, 50, 56 and 80

Percentage

33. Find x, if :

    (a) x% of 50 = 32   (b) 2·4% of x = 3·60

34. If 35% of a quantity is 308, find the quantity.

35. (a) The price of an article increases from ₹ 750 to ₹ 900; find the percentage increase in the price.

    (b) The price of an article decreases from ₹ 1,250 to ₹ 1,000; find the percentage decrease in the price.

36. The age of Mohit is 20% more than the age of his sister Sarita. Find the age of Sarita, if Mohit's age is 42 years.

Profit and Loss (Including Discounts)

37. By selling an article for ₹ 1,800; a shopkeeper gains ₹ 360. At what price did he sell the article, if his loss by selling this article was ₹ 45 ?

38. A man sells an article for ₹ 900 and makes a profit of ₹ 100. Find his profit percent.

39. When an article is sold for ₹ 2,250 a profit of 12·5% is made. Find :

    (a) the cost price of the article.

    (b) the selling price of the article when it was sold at a loss of 20%.

40. On selling a table for ₹ 4,250; a loss of 15% is incurred. If the same table is sold at 8% profit, what will be its selling price ?

Interest (Simple Interest)

41. On what sum the interest for 5 years at the rate of 6.25% per annum will be ₹ 625 ?

42. Find the rate of interest at which a sum of money will get doubled in 4 years.

43. In how much time will the interest on ₹ 1,500 be ₹ 300 at the rate of 5% per annum?

44. Find the sum of money that amounts to ₹ 3,000 in 5 years and at 4% per annum.

Algebra — Fundamental Concepts

45. Write all the terms of the algebraic expression $5x^3 - 3xy^2 + 7xy - 8$. Also, write its constant term.

46. For the polynomial $8 - y + \frac{1}{2}y^3 - 3y^2$, write :

    (a) constant term   (b) coefficient of y^2

    (c) the degree of the polynomial.

47. Write the degree of :

    (a) $6x^3 - 5xy^3 + 2x^3y^2$

    (b) $8x^2y^2 + 3x^3y - 7x^4y^2$

48. If x = 10 and y = −3; find the value of :

    (a) $3x^2 - 5x - 8$ (b) $2x^2 - 3xy + y^2$

Fundamental Operations

49. Evaluate :

    (a) $(5a - 2b - 3c) + (3a + 6b + 4c)$
    $- (6a - 3b + 2c)$

    (b) $(4x^2 - 5x + 6) - (3x^2 - 2x - 1) - (x^2 + x)$

50. Multiply :

    (a) $2a^2$, 3ab and $- 2b^2$

    (b) $4 - a^2$ and $2 + 3a$

    (c) $a + b - c$ and $a - b + c$

51. Divide :

    (a) $8x^3$ by $- 4x$ (b) $(12a^2 - 8a)$ by 4a

    (c) $4x^2y^3z^4$ by $2xy^2z$

52. What must be subtracted from $3x^2 - 2xy + 5y^2$ to get $-x^2 + 2y^2$?

Substitution

53. Multiply $3x - y$ and $2x + 5y$ and find the value of the product if x = 2 and y = − 1.

54 Find the value of $8a^2 + 3ab - 6b^2 + 5$, when a = −2 and b = 1.

55. Find the value of $3pq - 5qr + 4rp$, when p = 1, q = 2 and r = 3.

56. If a = −2, find the value of $3a^3 + 2a^2 - a + 6$.

Simple Equation

57. The sum of two consecutive whole numbers is 23, find the numbers.

58. A is 5 years younger than B. If sum of the ages of A and B is 29 years; find the ages of A and B.

59. Find the consecutive even natural numbers whose sum is 66.

60. Find two consecutive odd integers whose sum is 72.

Geometry — Fundamental Concepts

61. Which of the following has a definite length ?

    (a) a line   (b) a ray   (c) a line segment

62. Four lines are drawn on a plane paper.

    (a) If two of these lines are not parallel, what are the lines called ?

    (b) If two of these lines do not intersect, what are these lines called ?

63. If the same straight line passes through points A, B and C; write the special name for these three points.

64. Three different lines pass through the same point P; write the special name for these three lines.

Angles, Properties of angles and Construction of angles

65. Find the complement and the supplement of the angle 40% of 140°.

66. Find the angle which is double of its complement.

67. Two supplementary angles differ by 30°, find the angles.

68. Find the angle whose supplement is three times its complement.

69. Find x, if $(x + 20)°$ and $(x − 40)°$ are :
    (a) complement to each other
    (b) supplement to each other.

70. Using a protractor construct, on your notebook, angles of : (a) 80° (b) 47° (c) 115°.

71. In each of the following figures, find the angle x (AOB and COD are straight lines):

    (a)

    (b)

    (c)

    (d)
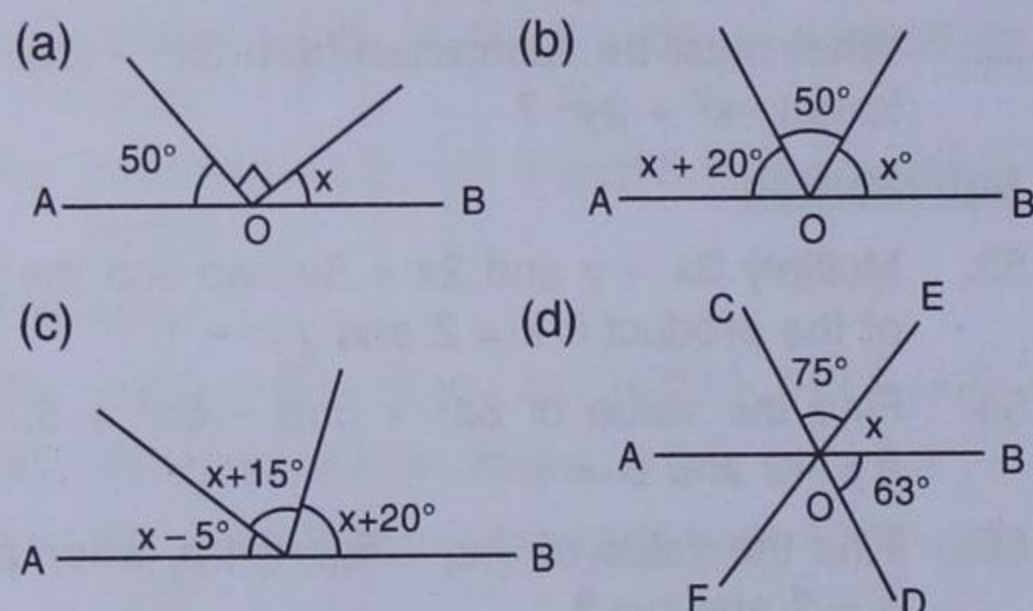
72. In each of the following figures, AB//CD and EF is a transversal. Find, in each case, the values of a, b and c :

    (a)

    (b)
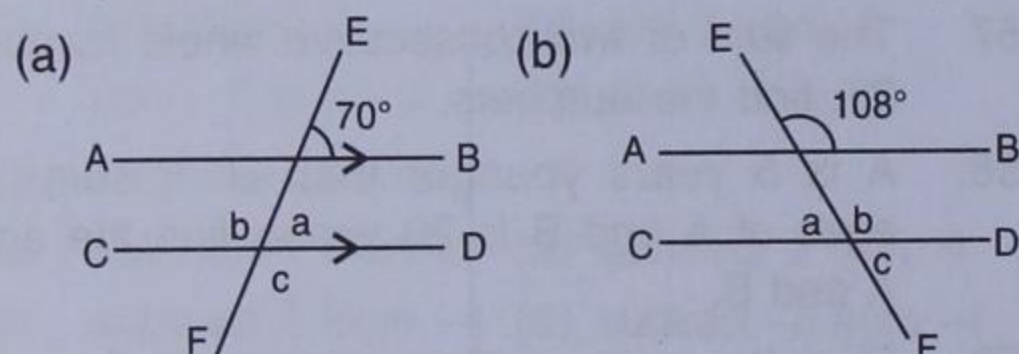
73. Construct angle AOB = 120°. Draw OC as the bisector of ∠AOB. Measure ∠BOC and ∠AOC. Is ∠BOC = ∠AOC ? Further, draw OD to bisect ∠AOC and state the measure of ∠AOD.

74. Without using a protractor, construct ∠AOB = 90° in which OA = 5 cm and OB = 6 cm. Draw OD such that ∠AOD = 60° and state the measure of ∠BOD.

75. In the given figure :

    (a) is a + d = 180° ?
        Give reason.
    (b) is b + c = 180° ? Give reason.
        Show that a + b + c + d = 360°.
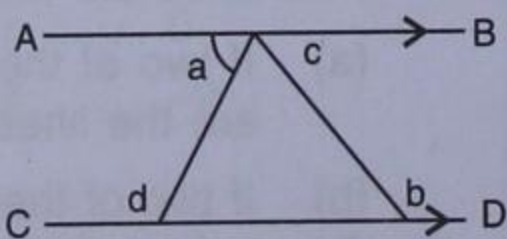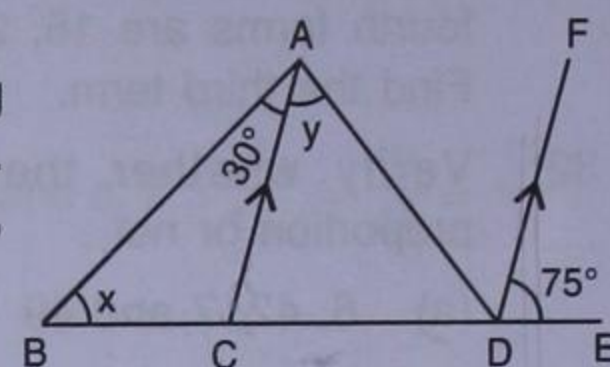
Triangles

76. In ΔABC, ∠A = 87° and ∠B = 45°; find ∠C.

77. If the angles of a triangle are in the ratio 2 : 4 : 3; find the angles.

78. One angle of a triangle is 80° and the other two angles of it are in the ratio 3 : 2. Find the unknown angles.

79. In the adjoining figure, AC//FD. Find x. Also, find y, if y − x = 10°.

80. State, **true** or **false** :
    (a) A triangle can have three acute angles.
    (b) A triangle can have two obtuse angles.
    (c) A triangle can have one obtuse angle and one right angle.
    (d) If one angle of a triangle is obtuse, each of its other two angles are acute.
    (e) If one angle of a triangle is a right angle, sum of other two angles = 90°.
    (f) If one angle of a triangle is a right angle, each of other two angles are acute.

81. Use the information given in the following figures to find the value of x :

    (a)

    (b)
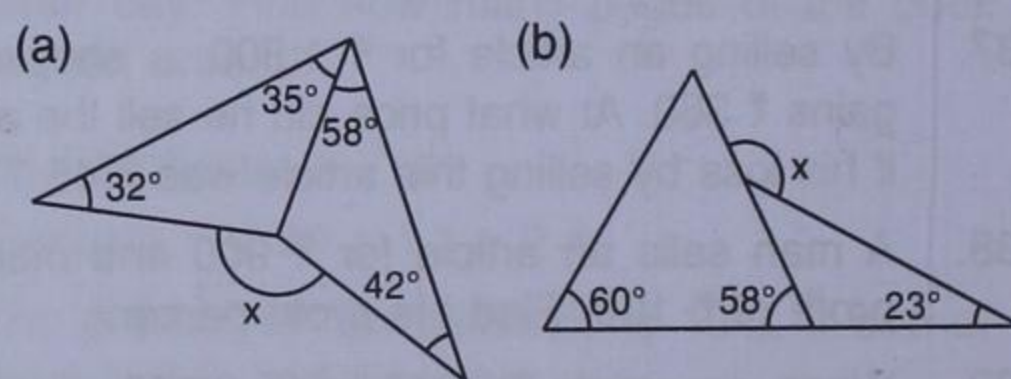
82. Construct (without using a protractor) ΔABC in which :
    (a) AB = 6·2 cm, ∠A = 30° and ∠B = 60°
    (b) AB = 6·2 cm, CA = 5 cm and ∠BAC = 60°
    (c) AB = 5·8 cm, BC = 6·2 cm = CA
    (d) BC = 5·6 cm, ∠B = 60° and ∠C = 75°

83. Contruct an equilateral triangle with each side 6 cm.

The Circle

84. (a) The radius of a circle is 3·8 cm, find the length of its diameter.
    (b) The diameter of a circle is 6·6 cm, find the length of its radius.

85. Draw a circle of radius 6 cm. Mark its centre as O. Draw a chord AB = 6 cm in the circle drawn above. Measure angle OAB.

86. Draw a circle, with centre O and radius = 4.6 cm. Point P will lie outside the circle, inside the circle or on the circumference of the circle, if :
    (a) OP = 3·9 cm   (b) OP = 4·6 cm

87. O is the centre of a circle of radius 3.5 cm. Points A and B lie on the circumference of the circle such that A, O and B are collinear. Measure the length of AB.

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Linear Symmetry

88. Draw a rough sketch for each of the following figures. For each figure, draw, if possible, largest number of lines of symmetry.
    (a) A scalene triangle   (b) A rectangle
    (c) A isosceles triangle   (d) A circle
    (e) A equilateral triangle (f) A rhombus
    (g) A parallelogram   (h) A square
    (i) A semicircle

89. Construct an angle AOB = 120° with OA = OB = 5·5 cm. If possible, draw line of symmetry of angle AOB.

90. For each figure given below draw as many lines of symmetry as possible
    (a)   (b)   (c)
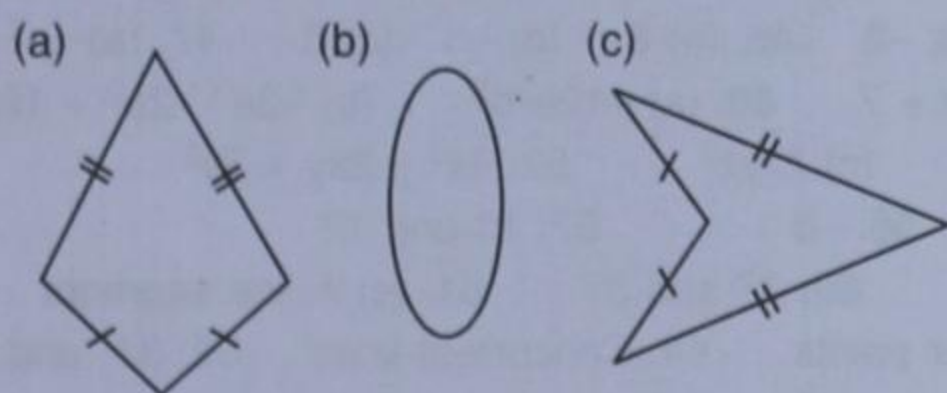
91. Name any two figures which have only one line of symmetry.

92. Name any two figures which have exactly two lines of symmetry.

93. Name any two figures which have no line of symmetry.

Mensuration — Perimeter and Area of Plane Figures

94. The perimeter of a square is 36 cm. Find the length of its side and its area.

95. The perimeter of a rectangle is 46 cm and its length is 15 cm. Find its width and its area.

96. The length of a rectangle is double its width. If its perimeter is 90 cm, find its
    (a) width   (b) length   (c) area

97. The perimeters of a rectangular field and a square field are equal. If the length and the breadth of the rectangular field are 40 m and 36 m, find:
    (a) the perimeter of the rectangular field
    (b) the perimeter of the square field
    (c) each side of the square field
    (d) area of the square field.
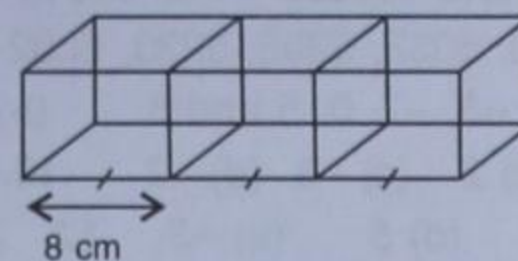   (e) area of the rectangular field.

Solid (Their Volumes and Surface Areas)

98. The volume of a cube is 64 cm³. Find its :
    (a) each edge   (b) surface area

99. How many bricks, each 25 cm long, 10 cm wide and 7·5 cm thick will be required to make a wall 12 m long, 8 m high and 50 cm thick.

100. Three identical cubes, each of side 8 cm are joined end to end, as shown below, to form a cuboid. Find :

8 cm

    (a) the length, the breadth and the height of the cuboid formed.
    (b) the surface area and the volume of the cuboid formed.

Statistics : Introduction and Graphs

101. Draw a column graph to represent the following data.

Name	Apurv	Geeta	John	Deepa	Rohan
Marks	40	50	80	70	60

102. A man spends ₹ 20 on his breakfast, ₹ 80 on his lunch, ₹ 50 for buying stationary and ₹ 30 on other things. Draw a pie chart to represent the given data.

103. The following table shows the temperature (in °F) of a patient at different time on a particular day.

Time	8 am	11 am	1 pm	5 pm	8 pm
Temp.(°F)	102	100	99	103	98

Draw a line graph to represent the given data.

Set Theory
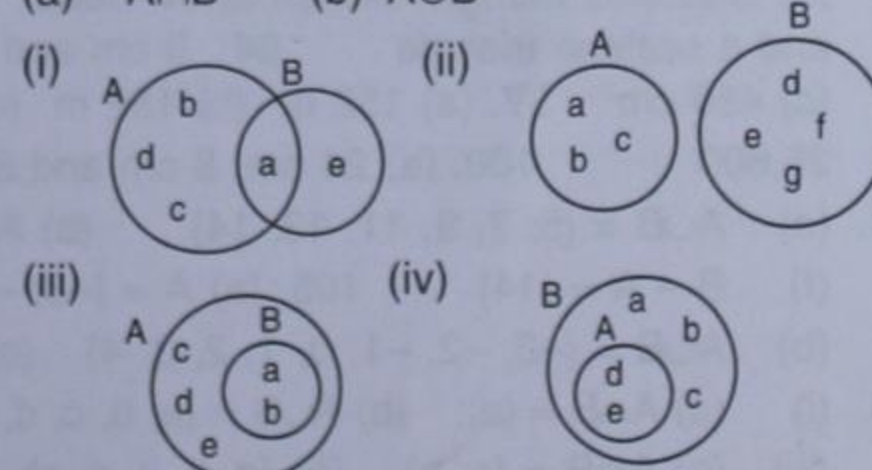
104. If A = {5, 7, 9, 11, 13} and B = {7, 11, 14}; find :
    (a) A∪B   (b) A∩B   (c) n(A∩B)
    (d) n(A∪B)   (e) A – B   (f) B – A

105. If A = {x : x ∈ Integers and −4 < x ≤ 3} and B = {x : x ∈ Integers and −1 ≤ x < 5}; find :
    (a) A and B in roster form
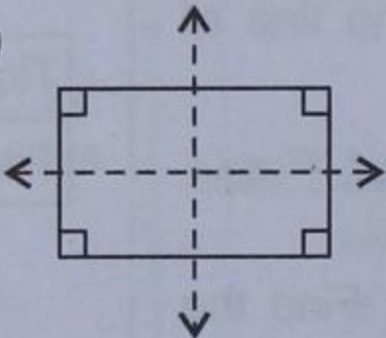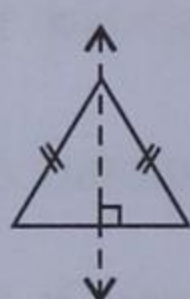   (b) A∪B   (c) A∩B
    (d) n(A∪B)   (e) n(A∩B)

106. From each venn-diagram, given below, find :
    (a) A∩B   (b) A∪B
   (i)   (ii)
    (iii)   (iv)

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ANSWERS

1. 999999 and 100000   2. 54919   3. 2410   4. (a) 5123, 5132, 5213, 5231, 5312, 5321
(b) 5023, 5032, 5203, 5230, 5302 and 5320   5. (a) Not possible   (b) Not possible
6. (a) –12, –8, –7, 0, 5 and 8   (b) 8, 5, 3, 1, –3 and –7   7. (a) 4 (b) 31   8. (a) –10 (b) 27
9. (a) 8 (b) 2 (c) –8 (d) –2   10. (a) –2 (b) 2 (c) –6 (d) –2 (e) 6   11. (a) –3 (b) 9
(c) –3 (d) 5 (e) –3   12. (a) greater than, smaller than   (b) smaller than, greater than
(c) greater than, smaller than   13. 25 and 42; 25 and 21   14. 48   15. 720   16. 1263

17. $m = 6$ and $n = 90$ 18. (a) $1\frac{9}{40}$ (b) $16\frac{9}{10}$ 19. 90   20. 126   21. 60·72   22. 4·25   23. (a) ₹ 35
(b) ₹ 87.50   24. (a) –125 (b) –125 (c) 128   25. (a) 160 (b) 20   26. (a) 12 (b) 6
27. (a) 2 (b) 2 (c) 3 (d) 3   28. B = 125   29. (a) 192 (b) 91   30. 364 and 196   31. 8·5
32. (a) Yes (b) No   33. (a) 64 (b) 150   34. 880   35. (a) 20% (b) 20%   36. 35 years
37. ₹ 1,395   38. 12·5%   39. (a) ₹ 2,000 (b) ₹ 1,600   40. ₹ 5,400   41. ₹ 2,000   42. 25%
43. 4 years   44. ₹ 2,500   45. $5x^3$, $– 3xy^2$, $7xy$ and $–8$; $–8$ 46. (a) 8 (b) –3 (c) 3   47. (a) 5 (b) 6
48. (a) 242 (b) 299   49. (a) $2a + 7b – c$ (b) $–4x + 7$ 50. (a) $–12a^3b^3$ (b) $–3a^3 –2a^2 + 12a + 8$
(c) $a^2 – b^2 – c^2 + 2bc$ 51. (a) $–2x^2$ (b) $3a – 2$ (c) $2xyz^3$ 52. $4x^2 – 2xy + 3y^2$
53. $6x^2 + 13xy – 5y^2$; $–7$ 54. 25   55. –12   56. –8   57. 11 and 12
58. A = 12 years and B = 17 years   59. 32 and 34   60. 35 and 37   61. (c) A line segment
62. (a) Intersecting lines   (b) Parallel lines   63. Collinear points   64. Concurrent lines   65. 34° and 124°
66. 60°   67. 75° and 105°   68. 45°   69. (a) 55° (b) 100°   71. (a) 40° (b) 55° (c) 50° (d) 42°
72. (a) a = 70°, b = c = 110°   (b) a = c = 72°; b = 108°   73. 60°; Yes; 30°   74. 30°
75. (a) Yes; Co-interior angles   (b) Yes; Co-interior angles   76. 48°   77. 40°, 80° and 60°   78. 60° and 40°
79. x = 45°; y = 55°   80. (a) True (b) False (c) False (d) True (e) True (f) True
81. (a) 167° (b) 145°   84. (a) 7·6 cm (b) 3·3 cm   85. 60°   86. (a) inside (b) on the circumference
87. AB = 7 cm   88. (a) Not possible   (b)   (c)   (d) Infinite number of lines of symmetry; each diameter

(e)   (f)   (g) Not possible   (h)   (i)

89.   90. (a)   (b)   (c)
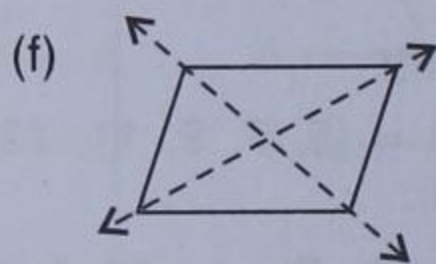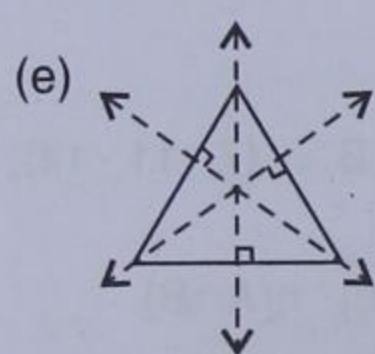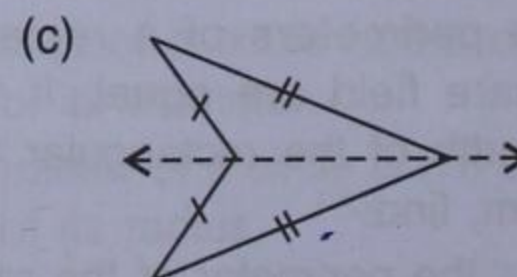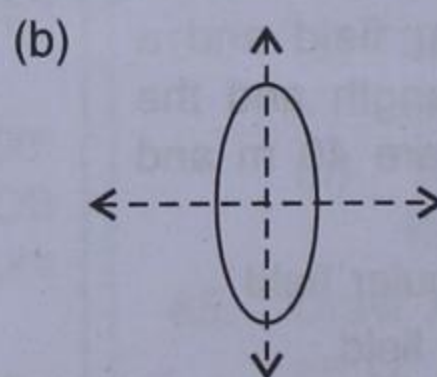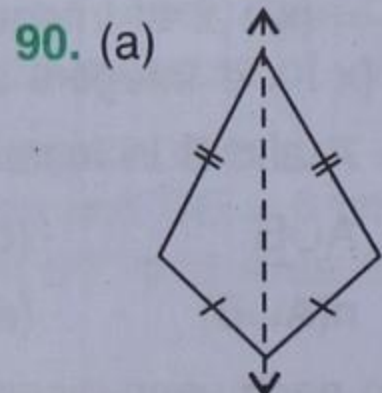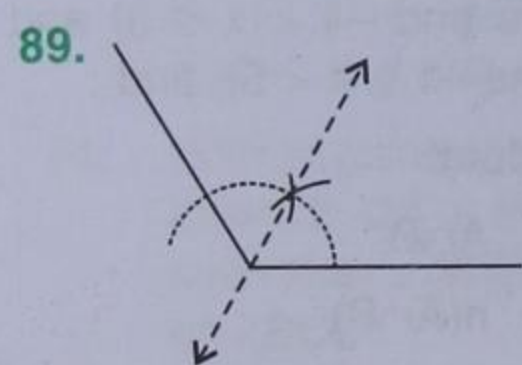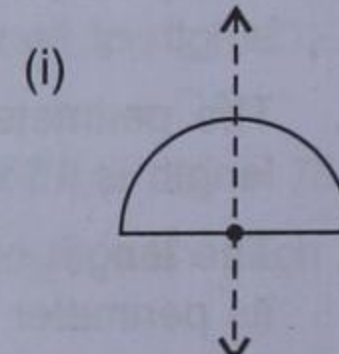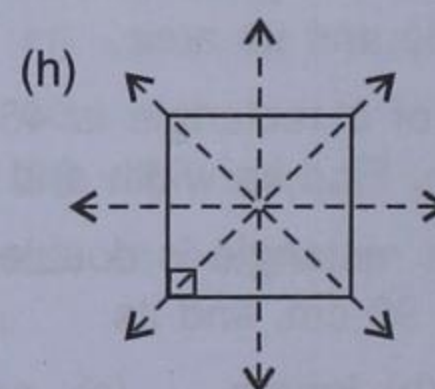
91. An isosceles triangle and an arrow head   92. A rhombus and a reactangle   93. A parallelogram and a scalene triangle   94. 9 cm and 81 cm²   95. 8 cm and 120 cm²   96. (a) 15 cm (b) 30 cm
(c) 450 cm²   97. (a) 152 m (b) 152 m (c) 38 m (d) 1444 m² (e) 1440 m²   98. (a) 4 cm (b) 96 cm²
99. 25,600   100. (a) 24 cm, 8 cm and 8 cm   (b) 896 cm² and 1536 cm³
104. (a) A∪B = {5, 7, 9, 11, 13, 14}   (b) A∩B = {7, 11}   (c) 2   (d) 6   (e) A – B = {5, 9, 13}
(f) B – A = {14}   105. (a) A = {–3, –2, –1, 0, 1, 2, 3} and B = {–1, 0, 1, 2, 3, 4}
(b) A∪B = {–3, –2, –1, 0, 1, 2, 3, 4}   (c) A∩B = {–1, 0, 1, 2, 3}   (d) n(A∪B) = 8   (e) n(A∩B) = 5
106. (i) (a) A∩B = {a}; (b) A∪B = {a, b, c, d, e}   (ii) (a) A∩B = { }; (b) A∪B = {a, b, c, d, e, f, g}
(iii) (a) A∩B = {a, b}, (b) {a, b, c, d, e}   (iv) (a) A∩B = {d, e}; (b) A∪B = {a, b, c, d, e}