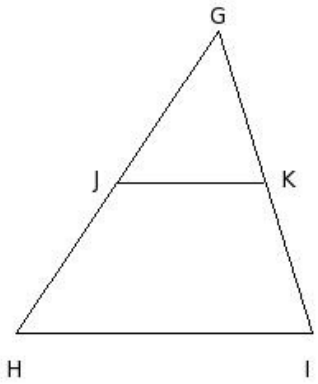
EduSahara™ Assignment

Name : Similarity of Triangles

Chapter : Triangles

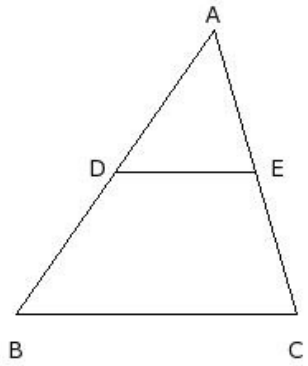
Grade : CBSE Grade X

1. In the given figure $\triangle GHI$,
J is the mid-point of $\overline{GH}$ and $\overline{JK} \parallel \overline{HI}$, then $GK =$



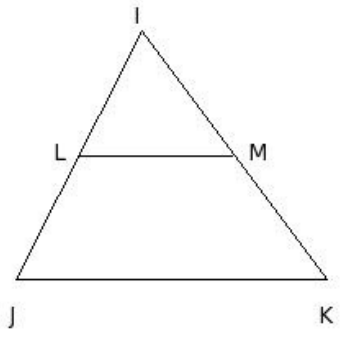
(i) $\frac{IG}{2}$ (ii) GJ (iii) $\frac{HI}{2}$ (iv) HI (v) $\frac{GH}{2}$

2. In the given figure $\triangle ABC$,
D is the mid-point of $\overline{AB}$ and $\overline{DE} \parallel \overline{BC}$, then $AD =$



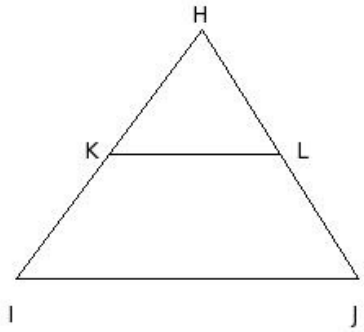
(i) BC (ii) AE (iii) $\frac{CA}{2}$ (iv) $\frac{AB}{2}$ (v) $\frac{BC}{2}$

3. In the given figure $\triangle IJK$,
L is the mid-point of $\overline{IJ}$ and $\overline{LM} \parallel \overline{JK}$, then $IL =$



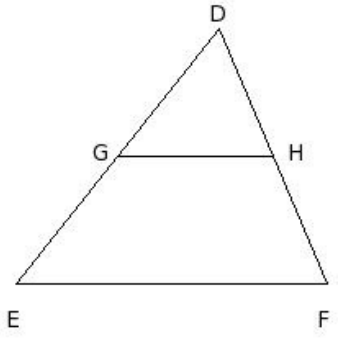
(i) KI (ii) LJ (iii) IM (iv) MK (v) IJ

4. In the given figure $\triangle HIJ$,
K is the mid-point of $\overline{HI}$ and $\overline{KL} \parallel \overline{IJ}$, then KI =



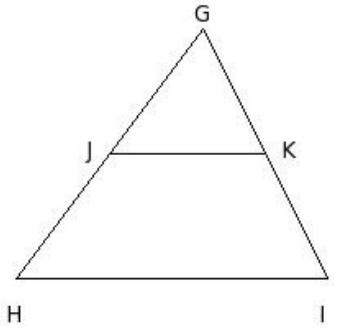
(i) HK (ii) JH (iii) HI (iv) LJ (v) HL

5. In the given figure $\triangle DEF$,
G is the mid-point of $\overline{DE}$ and $\overline{GH} \parallel \overline{EF}$, then DH =



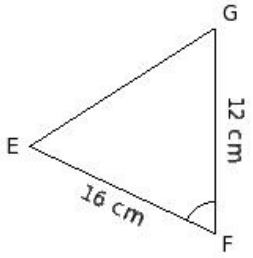
(i) GE (ii) DE (iii) DG (iv) HF (v) FD

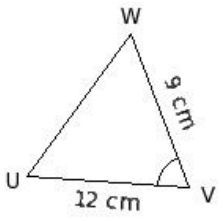
6. In the given figure $\triangle GHI$,
J is the mid-point of $\overline{GH}$ and $\overline{JK} \parallel \overline{HI}$, then KI =



(i) GK (ii) GJ (iii) GH (iv) IG (v) JH

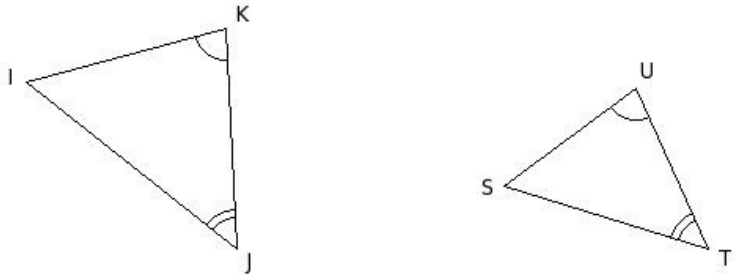
7. Identify the property by which the two given triangles are similar





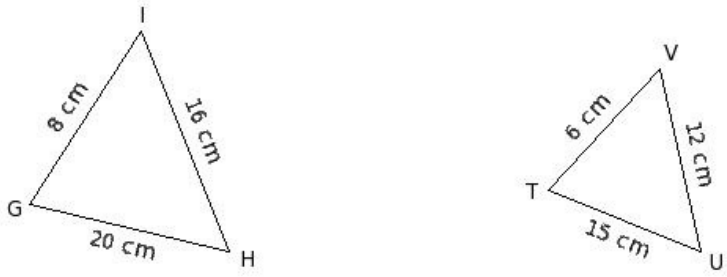
(i) not similar (ii) AAA Similarity (iii) SAS Similarity (iv) SSS Similarity

8. Identify the property by which the two given triangles are similar



(i) SSS Similarity (ii) SAS Similarity (iii) not similar (iv) AAA Similarity

9. Identify the property by which the two given triangles are similar

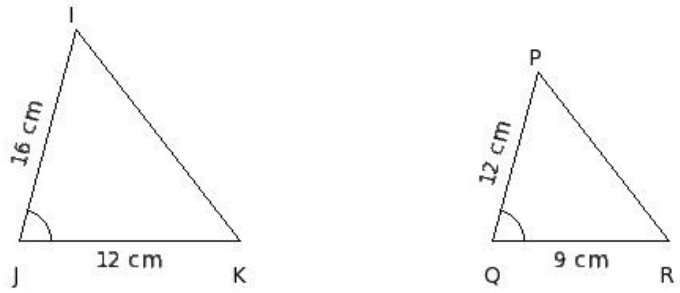


(i) SAS Similarity (ii) SSS Similarity (iii) AAA Similarity (iv) not similar

In the given figure, $\triangle IJK$ and $\triangle PQR$ are such that

10. $\angle J = \angle Q$ and $\frac{IJ}{PQ} = \frac{JK}{QR}$.

Identify the property by which the two triangles are similar

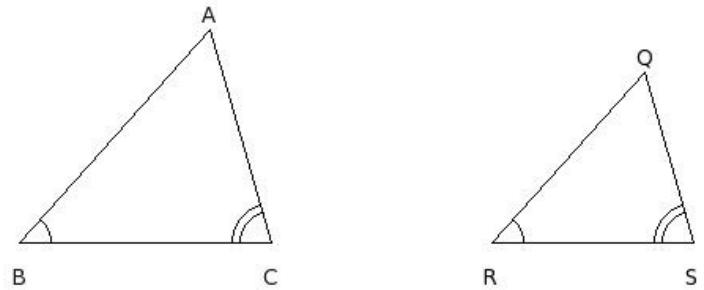


(i) AAA Similarity (ii) SAS Similarity (iii) not similar (iv) SSS Similarity

In the given figure, $\triangle ABC$ and $\triangle QRS$ are such that

11. $\angle B = \angle R$ and $\angle C = \angle S$.

Identify the property by which the two triangles are similar

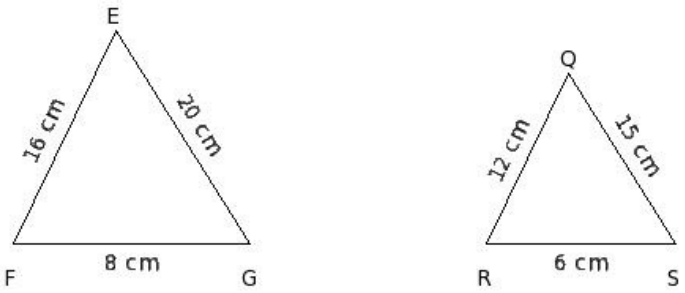


(i) SAS Similarity (ii) not similar (iii) SSS Similarity (iv) AAA Similarity

12. In the given figure, $\triangle EFG$ and $\triangle QRS$ are such that

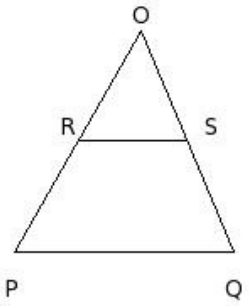
$\frac{EF}{QR} = \frac{FG}{RS} = \frac{GE}{SQ}$.

Identify the property by which the two triangles are similar



(i) AAA Similarity (ii) SSS Similarity (iii) not similar (iv) SAS Similarity

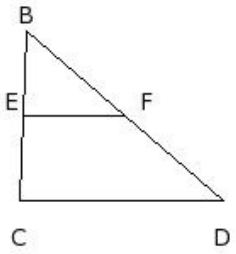
13. In the given figure, $RS \parallel PQ$. If $\frac{OR}{RP} = \frac{1}{1}$ and $OQ = 14.8$ cm, find OS



(i) 9.40 cm (ii) 5.40 cm (iii) 8.40 cm (iv) 7.40 cm (v) 6.40 cm

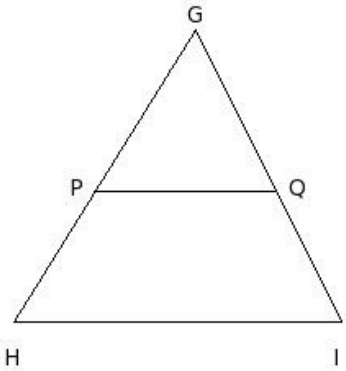
14. In the given figure, $EF \parallel CD$.

If $BE = 5.25$ cm, $BC = 10.5$ cm and $BD = 15.8$ cm, find BF



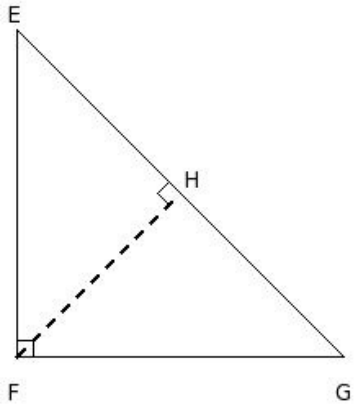
(i) 9.90 cm (ii) 6.90 cm (iii) 7.90 cm (iv) 8.90 cm (v) 5.90 cm

15. In the given figure, PQ ∥ HI and GQ = 12 cm, GI = 20 cm and HI = 20 cm, find PQ



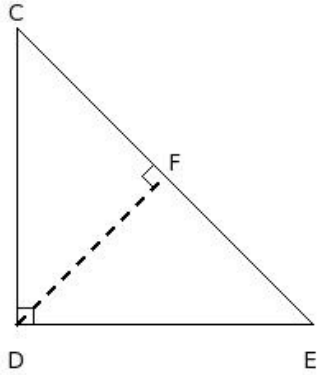
(i) 14.0 cm (ii) 11.0 cm (iii) 13.0 cm (iv) 10.0 cm (v) 12.0 cm

16. In the given figure, △EFG is isosceles right-angled at F and FH ⊥ GE. ∠G =



(i) ∠J (ii) ∠F (iii) ∠I (iv) ∠H (v) ∠E

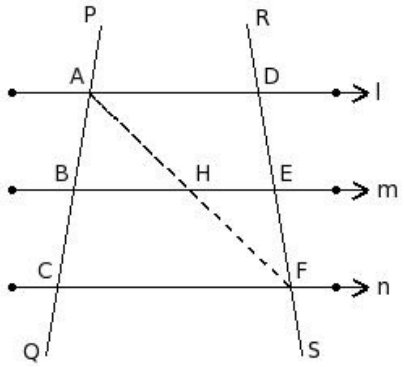
17. In the given figure, △CDE is isosceles right-angled at D and DF ⊥ EC. ∠CDF ≠



(i) ∠FDE (ii) ∠ECD (iii) ∠FCD (iv) ∠DFC (v) ∠DEF

In the given figure, three lines l , m and n are such that l ∥ m ∥ n.

18. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.
△FDA ~

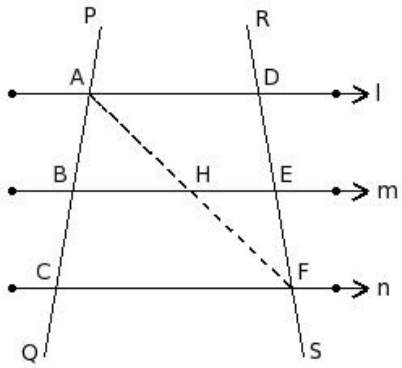


(i) △ABH (ii) △FEH (iii) △ACF (iv) △DCF (v) △DAE

In the given figure, three lines l , m and n are such that l ∥ m ∥ n.

19. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.

∠HFE =

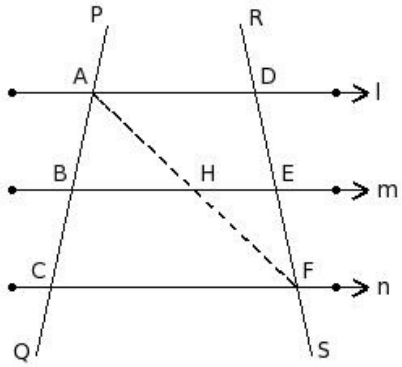


(i) ∠FEH (ii) ∠HAB (iii) ∠AFD (iv) ∠FDA (v) ∠FAC

In the given figure, three lines l , m and n are such that l ∥ m ∥ n.

20. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.

∠ABH =

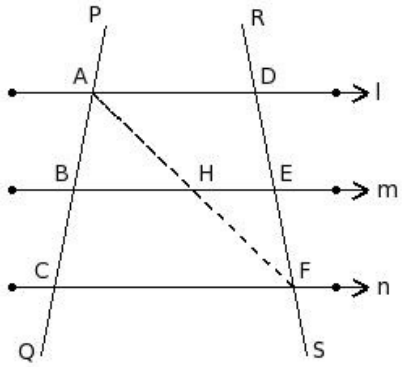


(i) ∠EHF (ii) ∠ACF (iii) ∠DAF (iv) ∠FEH (v) ∠FDA

In the given figure, three lines l , m and n are such that l ∥ m ∥ n.

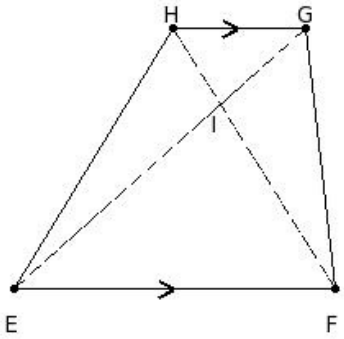
21. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.

∠DAF =



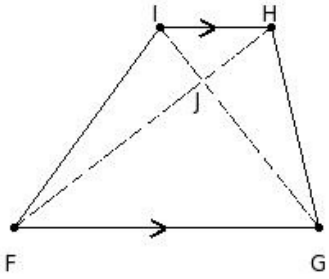
(i) ∠CFA (ii) ∠HFE (iii) ∠BHA (iv) ∠EHF (v) ∠AFD

22. In the given figure, EFGH is a trapezium in which EF ∥ GH and the diagonals FH and EG intersect at I. If IE = (9x+9) cm, FI = (5x+14) cm, IG = (8x+8) cm and HI = (5x+3) cm, find the value of x



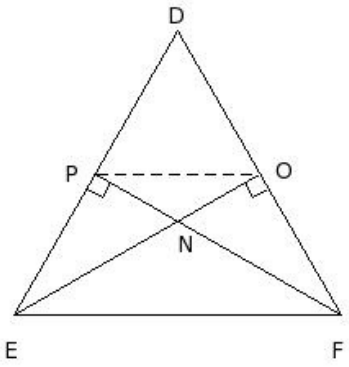
(i) (17,-2) (ii) (18,0) (iii) (1,19) (iv) (17,-1) (v) (19,-1)

23. In the given figure, FGHI is a trapezium in which FG ∥ HI and the diagonals GI and FH intersect at J. △JFG ~



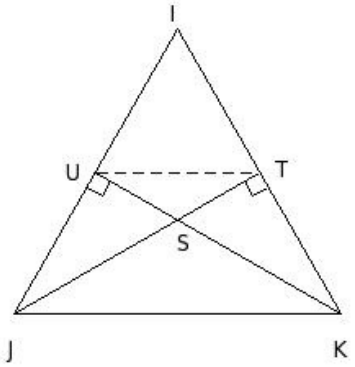
(i) △GHI (ii) △IFG (iii) △JIF (iv) △JGH (v) △JHI

24. In the given figure, the altitudes OE and FP of △DEF meet at N. △NEF ~



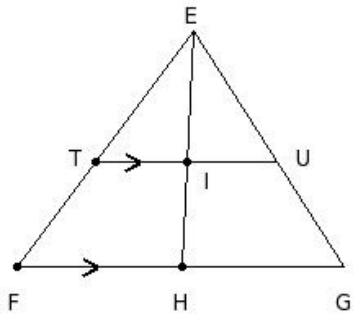
(i) △OFN (ii) △PEN (iii) △PEF (iv) △OFE (v) △NPO

25. In the given figure, the altitudes TJ and KU of △IJK meet at S. ∠KTS =



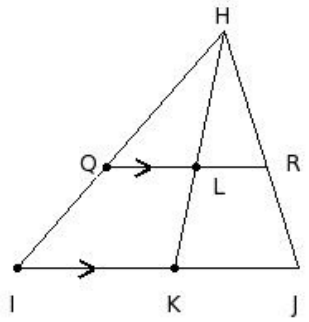
(i) ∠SUJ (ii) ∠UJS (iii) ∠JSU (iv) ∠SKT (v) ∠TSK

26. In the given figure, TU ‖ FG , and median EH bisects TU.
If EF = 18 cm, EH = 18 cm and EI = 10 cm, ET =



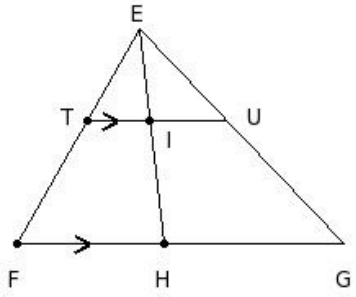
(i) 8.00 cm (ii) 12.00 cm (iii) 10.00 cm (iv) 9.00 cm (v) 11.00 cm

27. In the given figure, QR ‖ IJ , and median HK bisects QR.
If HK = 14.6 cm, HJ = 15 cm and HR = 8.57 cm, HL =



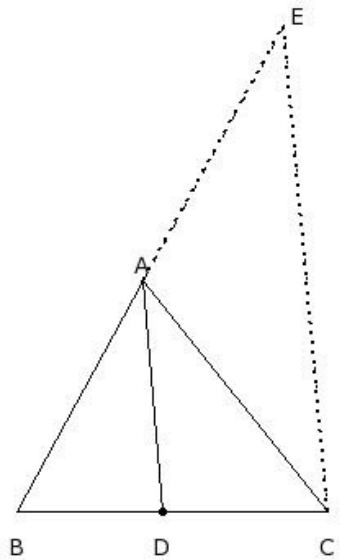
(i) 9.34 cm (ii) 6.34 cm (iii) 7.34 cm (iv) 10.34 cm (v) 8.34 cm

28. In the given figure, TU ‖ FG , and median EH bisects TU. △EIU ~



(i) △EHG (ii) △EFH (iii) △EFG (iv) △FGE (v) △ETI

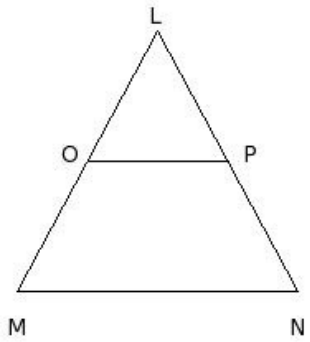
29. In the given figure, △ABC is a triangle in which AD is the internal bisector of ∠A and CE ‖ DA meeting BA produced at E . ∠CAD =



(i) ∠CEA (ii) ∠BDA (iii) ∠ADC (iv) ∠DCA (v) ∠EAC

30. In the given figure, O and P are points on the sides LM and LN respectively of △LMN.For which of the following cases, OP ∥ MN

a) LO = 9 cm, OM = 9 cm, LP = 9 cm and PN = 9 cm
b) LM = 18 cm, OM = 9 cm, LP = 11 cm and LN = 18 cm
c) LM = 18 cm, OM = 9 cm, LN = 18 cm and LP = 9 cm
d) LM = 18 cm, LO = 11 cm, LN = 18 cm and PN = 9 cm



(i) {d,c} (ii) {b,a} (iii) {b,c,a} (iv) {b,d,a} (v) {a,c}

31. Which of the following are true?

a) Any two squares are similar.
b) Any two triangles are congruent.
c) Any two squares are congruent.
d) Any two circles are similar.
e) Any two triangles are similar.
f) Any two circles are congruent.

(i) {a,d} (ii) {b,a} (iii) {e,f,a} (iv) {c,d} (v) {b,d,a}

32. Which of the following are true?

a) A sector is a polygonal region.
b) A semi-circle is a polygonal region.
c) A square is a polygonal region.
d) A circle is a polygonal region.
e) A triangle is a polygonal region.

(i) {b,e} (ii) {d,a,c} (iii) {c,e} (iv) {b,e,c} (v) {a,c}

33. Which of the following are true?

a) If two figures are similar, then they are congruent too.
b) Similar figures have same area.
c) Similar and congruent are not synonymous.
d) Congruent figures have same area.
e) If two figures are congruent, then they are similar too.

(i) {a,c,d} (ii) {a,c} (iii) {c,d,e} (iv) {b,d} (v) {a,b,e}

34. Which of the following are true?

a) Area of a convex polygonal region is equal to the sum of the areas of all triangles formed by joining the vertices of the polygon with an interior point.
b) Area of the union of two polygonal region is the sum of the individual area.
c) Area of the union of two polygonal region is not equal to the sum of the individual area.
d) A polygonal region can be divided into a finite number of triangles in a unique way.

(i) {b,a} (ii) {d,c} (iii) {a,c} (iv) {b,d,a} (v) {b,c,a}

35. Which of the following are necessary conditions for similarity of two polygons ?

a) The corresponding sides are proportional.
b) The corresponding sides are equal.
c) The corresponding angles are proportional.
d) The corresponding angles are equal.

(i) {b,c,a} (ii) {b,d,a} (iii) {b,a} (iv) {c,d} (v) {a,d}

36. Which of the following are true?

a) Similarity is anti symmetric.
b) Similarity is symmetric.
c) Similarity is transitive.
d) Similarity is reflexive.

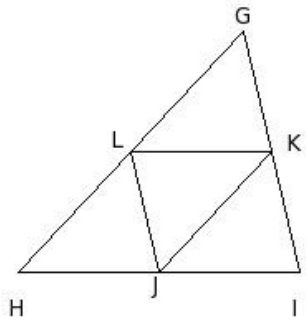
(i) {a,b} (ii) {b,c,d} (iii) {a,b,c} (iv) {a,c} (v) {a,d}

37. Which of the following are true?

a) Any two quadrilaterals are similar if the corresponding sides are proportional.
b) Any two triangles are similar if the corresponding sides are proportional.
c) Any two quadrilaterals are similar if the corresponding angles are equal.
d) Any two triangles are similar if the corresponding angles are equal.

(i) {a,b,d} (ii) {c,a,b} (iii) {c,b} (iv) {c,a} (v) {c,d}

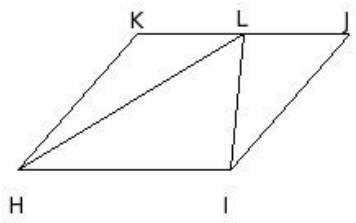
38. In the given figure, the area of the $\triangle GHI$ is x sq.cm. J,K,L are the mid-points of the sides HI , IG and GH respectively. The area of the $\triangle JKL$ is



(i) $\frac{2}{3}$ of area of $\triangle GHI$ (ii) $\frac{1}{2}$ of area of $\triangle GHI$ (iii) $\frac{1}{4}$ of area of $\triangle GHI$ (iv) $\frac{3}{4}$ of area of $\triangle GHI$

(v) $\frac{1}{3}$ of area of $\triangle GHI$

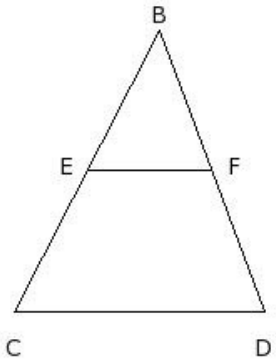
39. In the given figure, the parallelogram HIJK and the triangle $\triangle LHI$ are on the same bases and between the same parallels.
The area of the $\triangle LHI$ is x sq.cm. The area of the parallelogram is



(i) $\frac{3}{2}$ the area of the triangle (ii) thrice the area of the triangle (iii) $\frac{5}{4}$ the area of the triangle

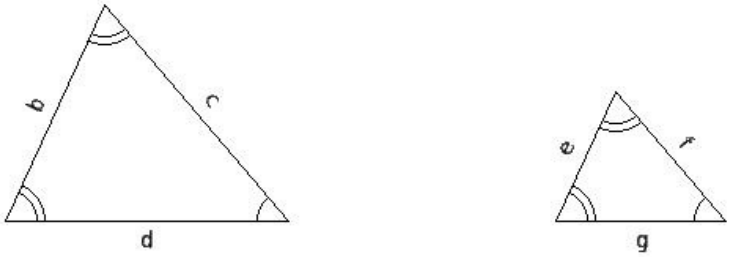
(iv) twice the area of the triangle (v) $\frac{4}{3}$ the area of the triangle

40. In the given △BCD, EF ∥ CD. If BE : EC = 9.5 cm : 9.5 cm and BD = 18 cm, BF =



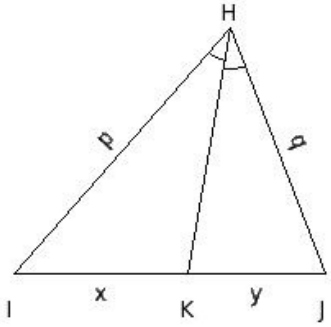
(i) 9.00 cm (ii) 7.00 cm (iii) 10.00 cm (iv) 8.00 cm (v) 11.00 cm

41. In the given two similar triangles, if b = 15 cm, c = 18 cm, d = 18 cm, e = 9 cm, find f



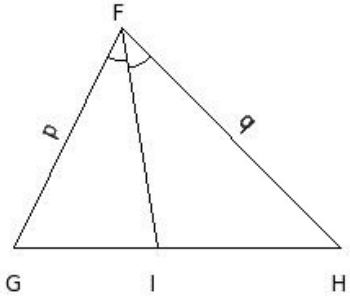
(i) 8.80 cm (ii) 12.80 cm (iii) 9.80 cm (iv) 11.80 cm (v) 10.80 cm

42. In the given figure, given ∠KHI = ∠JHK, x : y = 10.56 cm : 8.44 cm and p = 20 cm, find q =



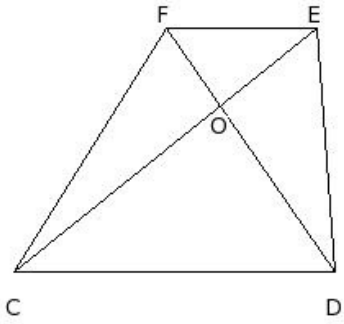
(i) 14.00 cm (ii) 18.00 cm (iii) 15.00 cm (iv) 16.00 cm (v) 17.00 cm

43. In the given figure, given ∠IFG = ∠HFI, p = 8.82 cm, q = 11.18 cm and GH = 20 cm, find GI =



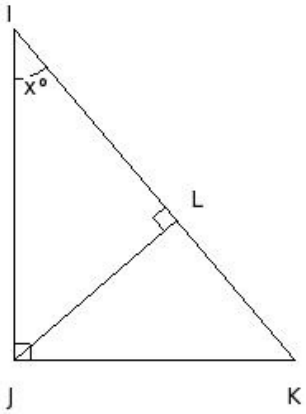
(i) 9.82 cm (ii) 8.82 cm (iii) 10.82 cm (iv) 6.82 cm (v) 7.82 cm

44. In the given figure, CDEF is a trapezium where OD = 14 cm , OE = 5 cm and OF = 5 cm . Find OC =



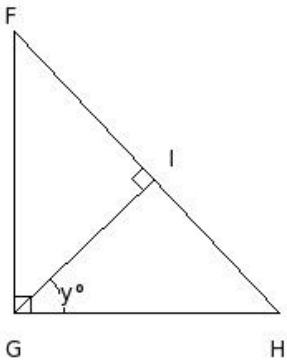
(i) 12 cm (ii) 15 cm (iii) 14 cm (iv) 16 cm (v) 13 cm

45. In the given figure, ∠IJL = 49.35°, find the value of x =



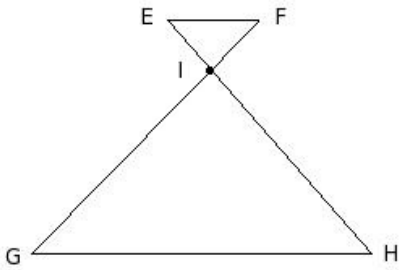
(i) 41.65° (ii) 40.65° (iii) 39.65° (iv) 38.65° (v) 42.65°

46. In the given figure, ∠GHI = 47.2°, find the value of y =



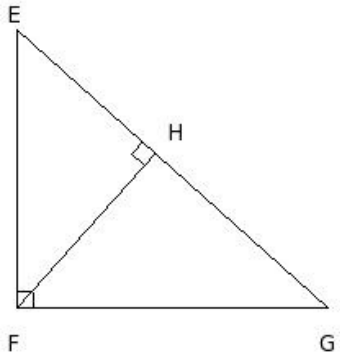
(i) 41.80° (ii) 44.80° (iii) 40.80° (iv) 43.80° (v) 42.80°

47. In the given figure, if EF ∥ GH then



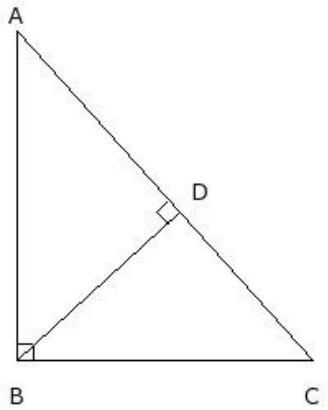
(i) △EFI ~ △IHG (ii) △EFI ~ △HGI (iii) △IEF ~ △IGH (iv) △EFI ~ △IGH (v) △IFE ~ △IHG

48. In the given figure, △EFG is right-angled at F. Also, FH ⊥ EG. If EF = 17 cm, FG = 19 cm, then find FH.



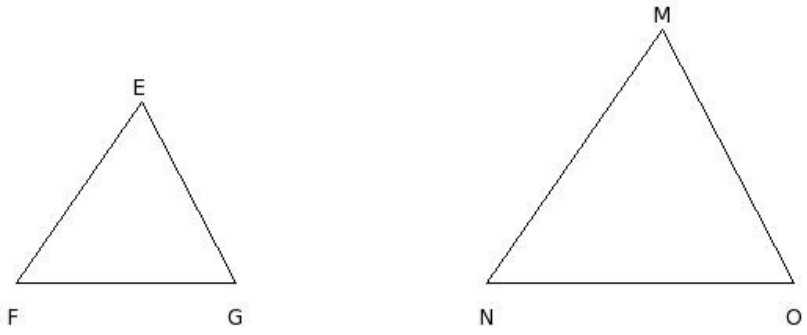
(i) 13.67 cm (ii) 11.67 cm (iii) 10.67 cm (iv) 14.67 cm (v) 12.67 cm

49. In the given figure, △ABC is right-angled at B. Also, BD ⊥ AC. If AD = 14.8 cm, DC = 12.1 cm, then find BD.



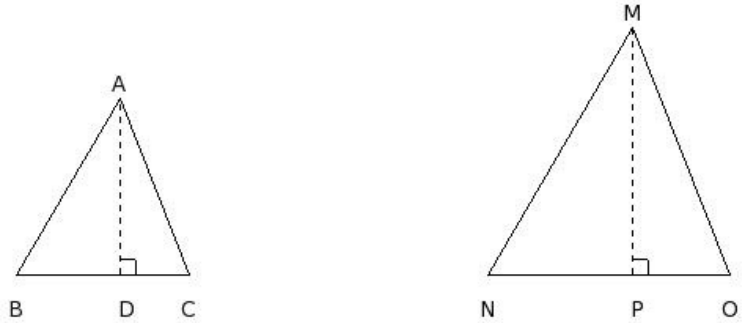
(i) 11.38 cm (ii) 15.38 cm (iii) 12.38 cm (iv) 13.38 cm (v) 14.38 cm

50. In the given figure, △EFG ~ △MNO and EF = 14 cm, MN = 19.6 cm.
If the area of the △EFG = 80.6 sq.cm, find the area of the △MNO



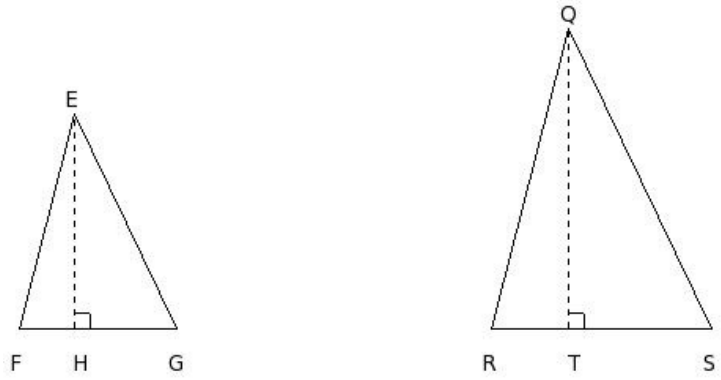
(i) 157.97 sq.cm (ii) 156.97 sq.cm (iii) 158.97 sq.cm (iv) 155.97 sq.cm (v) 159.97 sq.cm

51. In the given figure, △ABC ~ △MNO and BC = 11 cm , NO = 15.4 cm and
AD = 11.18 cm, find the area of the △MNO



(i) 119.50 sq.cm (ii) 118.50 sq.cm (iii) 122.50 sq.cm (iv) 121.50 sq.cm (v) 120.50 sq.cm

52. In the given figure, △EFG & △QRS are similar triangles. If the ratio of the heights EH : QT = 14 : 19, then the ratio of their areas is



(i) 195 sq.cm : 361 sq.cm (ii) 196 sq.cm : 358 sq.cm (iii) 197 sq.cm : 361 sq.cm (iv) 196 sq.cm : 361 sq.cm

(v) 196 sq.cm : 364 sq.cm

53. In the given figure, points M , N and O are the mid-points of sides KL, LJ and JK of △JKL. Which of the following are true?

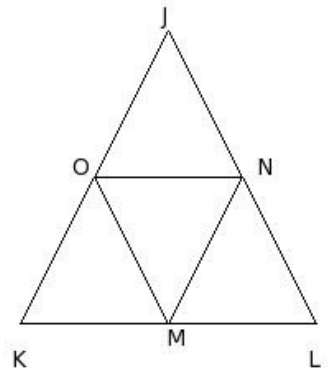
a) Area of trapezium KLNO is thrice the area of △JON

b) All four small triangles have equal areas

c) Area of △JKL = 4 times area of △MNO

d) $\text{Area of} \triangle JKL = \frac{1}{3} \text{ area of} \triangle MNO$

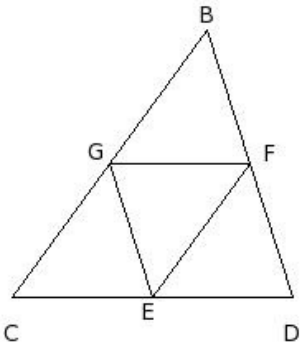
e) $\text{Area of trapezium KLNO is } \frac{1}{4} \text{ the area of} \triangle JKL$



(i) {d,e,c} (ii) {e,b} (iii) {a,b,c} (iv) {d,a} (v) {d,a,b}

54. In the given figure, points E , F and G are the mid-points of sides CD, DB and BC of △BCD. Which of the following are true?

a) △EGF ~ △BCD
b) △GCE ~ △BCD
c) △FED ~ △BCD
d) △EFG ~ △BCD
e) △BGF ~ △BCD

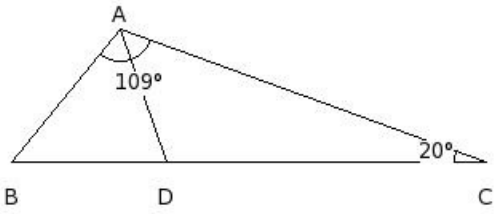


(i) {a,e,b} (ii) {b,c,d,e} (iii) {a,b} (iv) {a,d} (v) {a,c}

55. The perimeters of two similar triangles are 26 cm and 18 cm respectively. If one side of the first triangle is 9 cm, find the length of the corresponding side of the second triangle.

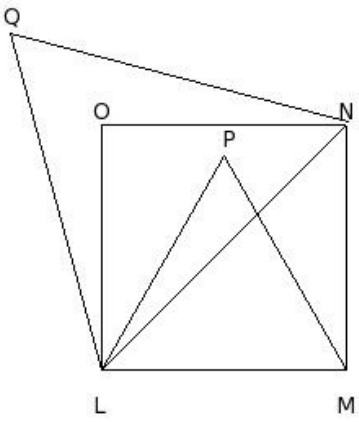
(i) 6.23 cm (ii) 5.23 cm (iii) 4.23 cm (iv) 8.23 cm (v) 7.23 cm

56. In the given figure, D is a point on side BC of △ABC such that ∠CAB = ∠ADC = 109° , ∠DCA = 20°. Find ∠CAD



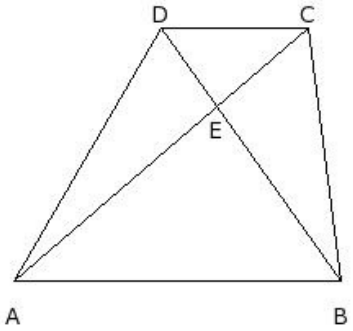
(i) 51° (ii) 49° (iii) 50° (iv) 52° (v) 53°

57. LMNO is a square and △LMP is an equilateral triangle. Also, △LNQ is an equilateral triangle. If area of △LMP is 'a' sq.units, then the area of △LNQ is



(i) a^2 sq.units (ii) $\sqrt{3}$ a sq.units (iii) $\frac{1}{2}\sqrt{3}$ a sq.units (iv) 2a sq.units (v) $\frac{1}{2}$ a sq.units

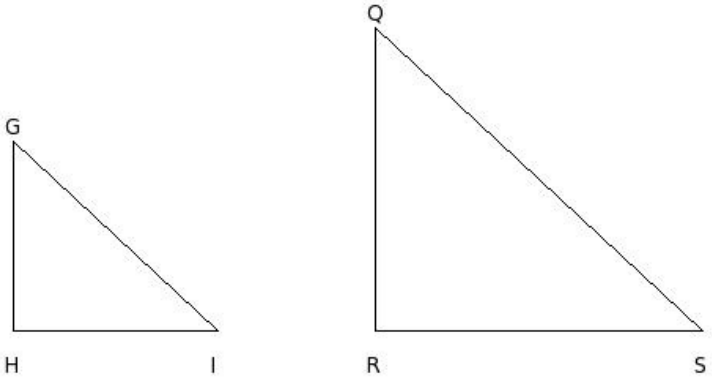
58. ABCD is a cyclic trapezium. Diagonals BD and AC intersect at E. If DA = 18 cm, find BC



(i) 17 cm (ii) 19 cm (iii) 18 cm (iv) 16 cm (v) 20 cm

A vertical stick 12 m long casts a shadow of 13 m long on the ground.

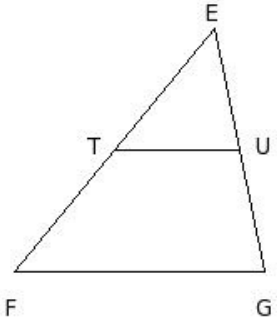
59. At the same time, a tower casts the shadow 104 m long on the ground.
Find the height of the tower.



(i) 96 m (ii) 95 m (iii) 94 m (iv) 98 m (v) 97 m

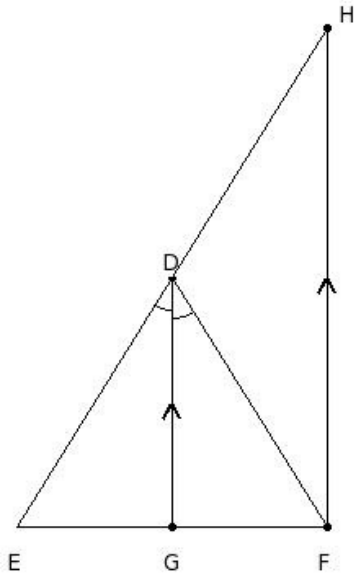
In the given figure, $\triangle EFG$, $TU \parallel FG$ such that

60. area of $\triangle ETU$ = area of $TUGF$. Find $\frac{ET}{EF}$



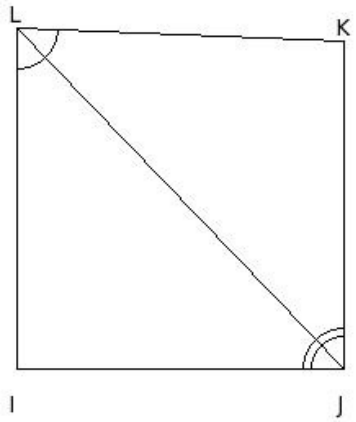
(i) $\frac{1}{2}\sqrt{2}$ (ii) 1 (iii) $\frac{1}{2}\sqrt{-1}$ (iv) $\frac{1}{2}\sqrt{5}$ (v) $\frac{1}{2}\sqrt{2}$

61. In the given figure, ∠GDE = ∠FDG and DG ∥ HF and DE = 18 cm, EG = 10 cm and GF = 10 cm. Find DH



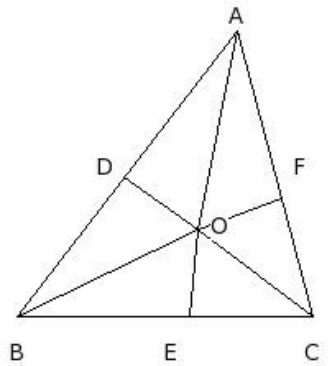
(i) 20.00 cm (ii) 17.00 cm (iii) 16.00 cm (iv) 19.00 cm (v) 18.00 cm

62. In the given figure, JL is the angular bisector of ∠J & ∠L
IJ = 20 cm, JK = 20 cm and KL = 20 cm. Find LI



(i) 22.00 cm (ii) 18.00 cm (iii) 19.00 cm (iv) 20.00 cm (v) 21.00 cm

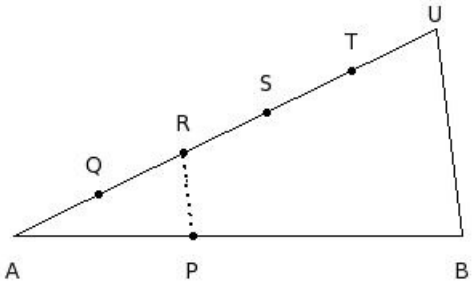
63. In the given figure, ABC is a triangle and 'O' is a point inside △ABC. The angular bisector of ∠BOA, ∠COB & ∠AOC meet AB, BC & CA at D, E & F respectively . Then



(i) AD . BE . CF = DB . EC . FA (ii) AD . BE . CF = OD . OE . OF (iii) AD . BE . CF = AB . BC . CA

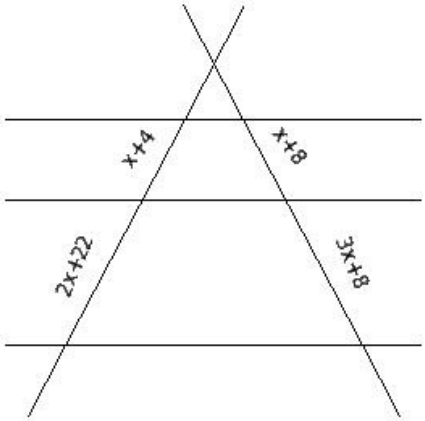
(iv) AD . BE . CF = DE . EF . FD (v) AD . BE . CF = OA . OB . OC

64. In the given figure, if A, Q, R, S, T, U are equidistant and RP ∥ UB and AB = 28 cm and AP = 11 cm. Find PB



(i) 16.00 cm (ii) 18.00 cm (iii) 17.00 cm (iv) 15.00 cm (v) 19.00 cm

65. From the given figure and values, find x

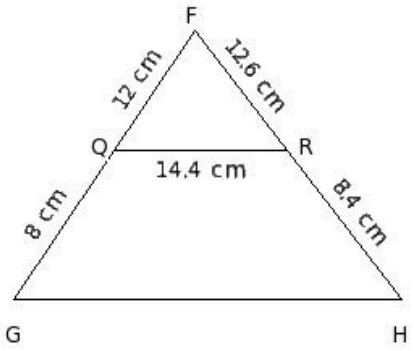


(i) (-3,24) (ii) (26,-4) (iii) (-6,23) (iv) (-5,25) (v) (-6,24)

66. The ratio of the bases of two triangles ABC and DEF is $10:5$.
If the triangles are equal in area, then the ratio of their heights is

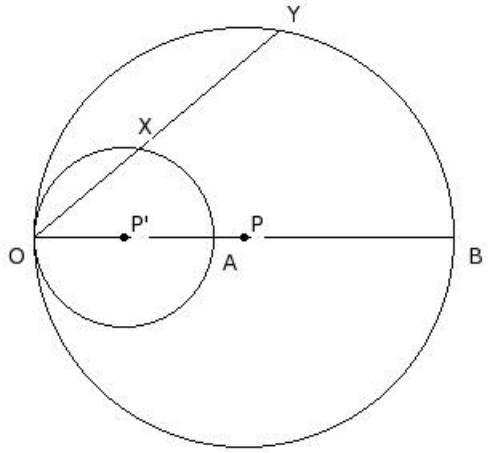
(i) $10:2$ (ii) $9:5$ (iii) $11:5$ (iv) $5:10$ (v) $10:8$

67. If the measures are as shown in the given figure, find GH



(i) 23.0 cm (ii) 25.0 cm (iii) 24.0 cm (iv) 22.0 cm (v) 26.0 cm

68. In the given figure, the two circles touch each other internally. Diameter OB passes through the centre of the smaller circle. $OX = 9$ cm, $OY = 20$ cm and radius of the inner circle is 5.6 cm. Find the radius of the outer circle.



(i) 12.44 cm (ii) 13.44 cm (iii) 11.44 cm (iv) 14.44 cm (v) 10.44 cm

Assignment Key

1) (i)	2) (iv)	3) (ii)	4) (i)	5) (iv)	6) (i)
7) (iii)	8) (iv)	9) (ii)	10) (ii)	11) (iv)	12) (ii)
13) (iv)	14) (iii)	15) (v)	16) (v)	17) (iv)	18) (ii)
19) (iii)	20) (ii)	21) (iv)	22) (iv)	23) (v)	24) (v)
25) (i)	26) (iii)	27) (v)	28) (i)	29) (i)	30) (v)
31) (i)	32) (iii)	33) (iii)	34) (iii)	35) (v)	36) (ii)
37) (i)	38) (iii)	39) (iv)	40) (i)	41) (v)	42) (iv)
43) (ii)	44) (iii)	45) (ii)	46) (v)	47) (ii)	48) (v)
49) (iv)	50) (i)	51) (v)	52) (iv)	53) (iii)	54) (ii)
55) (i)	56) (i)	57) (iv)	58) (iii)	59) (i)	60) (v)
61) (v)	62) (iv)	63) (i)	64) (iii)	65) (v)	66) (iv)
67) (iii)	68) (i)				