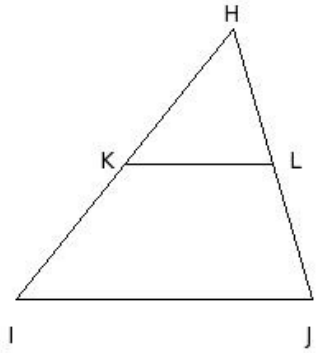
EduSahara™ Assignment

Name : Similarity of Triangles

Chapter : Triangles

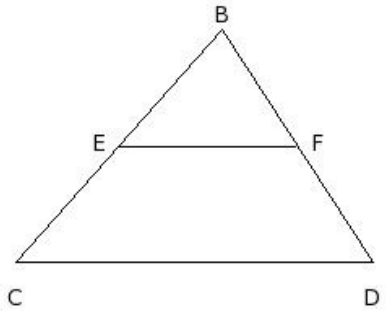
Grade : CBSE Grade X

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



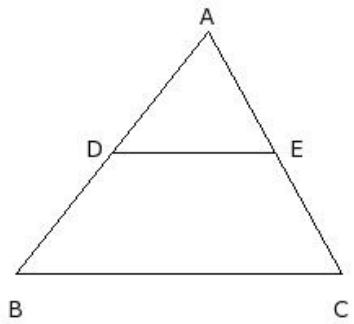
(i) $\frac{HI}{2}$ (ii) IJ (iii) $\frac{IJ}{2}$ (iv) HK (v) $\frac{JH}{2}$

2. In the given figure $\triangle BCD$,
E is the mid-point of $\overline{BC}$ and $\overline{EF} \parallel \overline{CD}$, then BE =



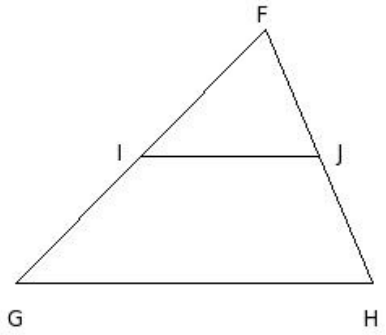
(i) BF (ii) $\frac{DB}{2}$ (iii) CD (iv) $\frac{CD}{2}$ (v) $\frac{BC}{2}$

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



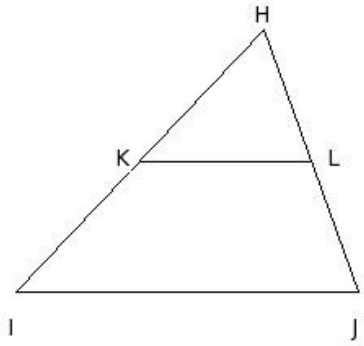
(i) DB (ii) AE (iii) AB (iv) CA (v) EC

4. In the given figure $\triangle FGH$,
I is the mid-point of $\overline{FG}$ and $\overline{IJ} \parallel \overline{GH}$, then IG =



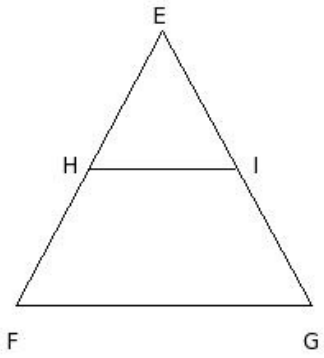
(i) FJ (ii) FI (iii) FG (iv) HF (v) JH

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



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

6. In the given figure $\triangle EFG$,
H is the mid-point of $\overline{EF}$ and $\overline{HI} \parallel \overline{FG}$, then IG =

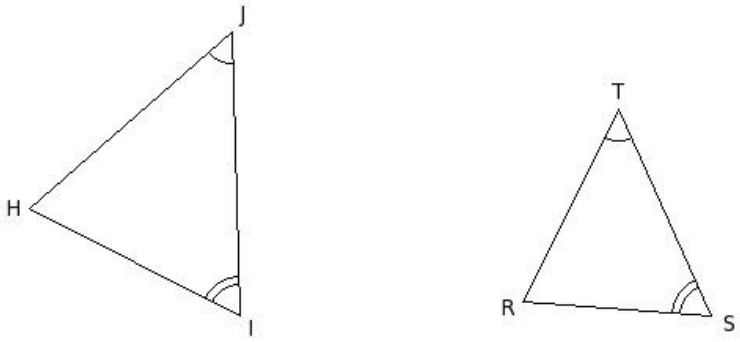


(i) GE (ii) EI (iii) EF (iv) HF (v) EH

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

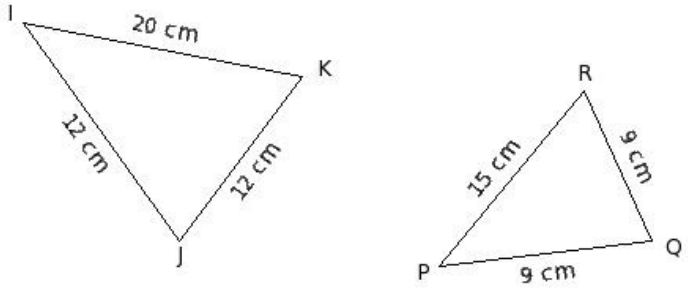
(i) AAA Similarity (ii) SSS Similarity (iii) not similar (iv) SAS Similarity

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



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

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

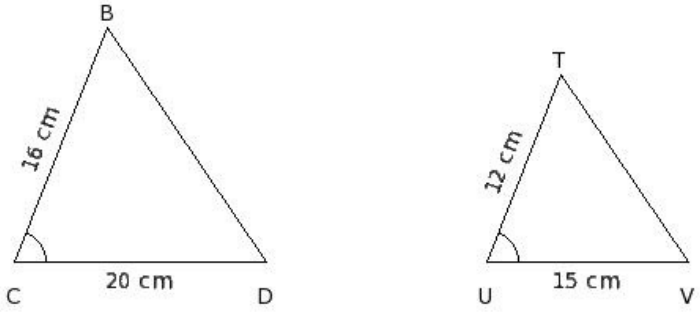


(i) AAA Similarity (ii) SAS Similarity (iii) SSS Similarity (iv) not similar

In the given figure, △BCD and △TUV are such that

10. $\angle C = \angle U$ and $\frac{BC}{TU} = \frac{CD}{UV}$.

Identify the property by which the two triangles are similar

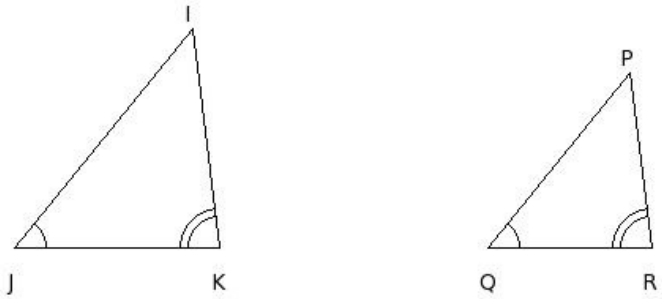


(i) not similar (ii) SAS Similarity (iii) AAA Similarity (iv) SSS Similarity

In the given figure, △IJK and △PQR are such that

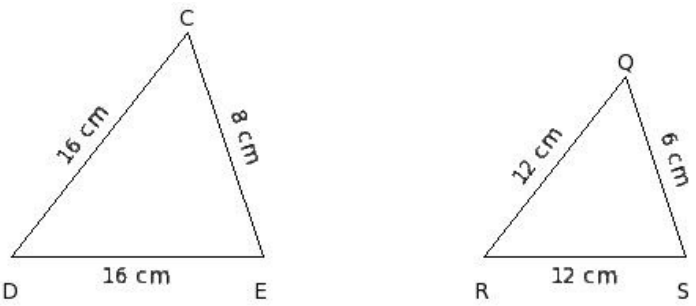
11. $\angle J = \angle Q$ and $\angle K = \angle R$.

Identify the property by which the two triangles are similar



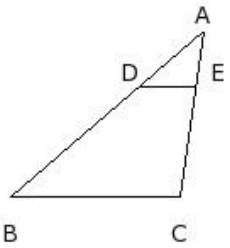
(i) SAS Similarity (ii) not similar (iii) AAA Similarity (iv) SSS Similarity

12. In the given figure, $\triangle CDE$ and $\triangle QRS$ are such that
$\frac{CD}{QR} = \frac{DE}{RS} = \frac{EC}{SQ}$.
Identify the property by which the two triangles are similar



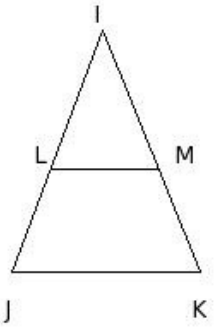
(i) SSS Similarity (ii) AAA Similarity (iii) not similar (iv) SAS Similarity

13. In the given figure, $DE \| BC$. If $\frac{AD}{DB} = \frac{1}{2}$ and $AC = 10.2$ cm, find AE



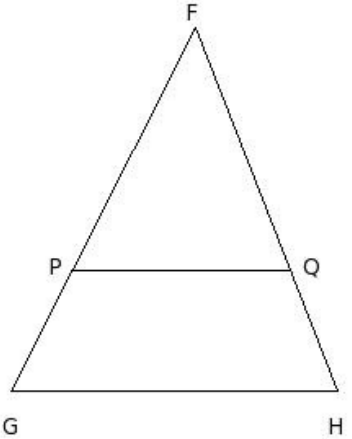
(i) 3.40 cm (ii) 2.40 cm (iii) 4.40 cm (iv) 1.40 cm (v) 5.40 cm

14. In the given figure, $LM \| JK$.
If $IL = 8.8$ cm, $IJ = 15.4$ cm and $IK = 15.6$ cm, find IM



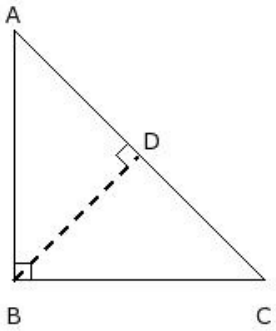
(i) 9.91 cm (ii) 6.91 cm (iii) 8.91 cm (iv) 7.91 cm (v) 10.91 cm

15. In the given figure, PQ ∥ GH and FP = 15 cm, FG = 25 cm and PQ = 12 cm, find GH



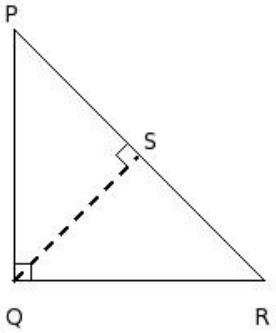
(i) 20.0 cm (ii) 18.0 cm (iii) 19.0 cm (iv) 21.0 cm (v) 22.0 cm

16. In the given figure, △ABC is isosceles right-angled at B and BD ⊥ CA. ∠D =



(i) ∠E (ii) ∠C (iii) ∠B (iv) ∠F (v) ∠A

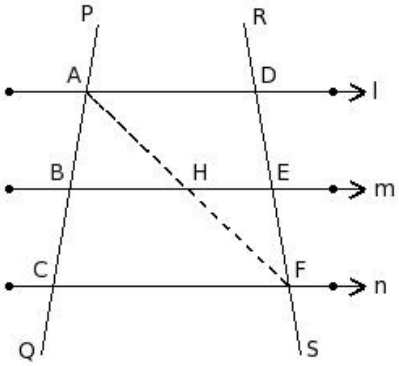
17. In the given figure, △PQR is isosceles right-angled at Q and QS ⊥ RP. ∠PQS ≠



(i) ∠RPQ (ii) ∠RSQ (iii) ∠SPQ (iv) ∠QRS (v) ∠SQR

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

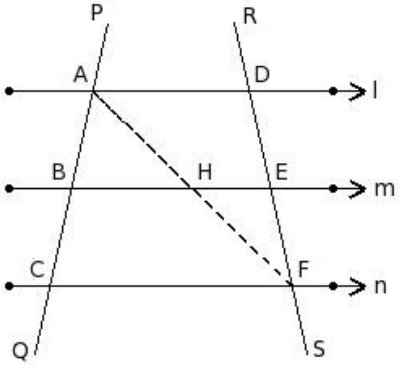
18. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively. △ABH ~



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

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

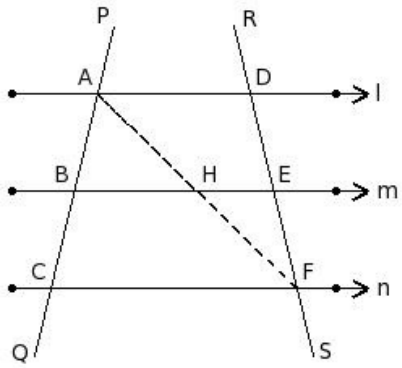
19. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively. ∠AFD =



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

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

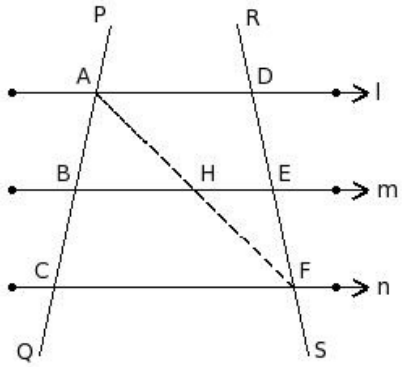
20. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.
∠ABH =



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

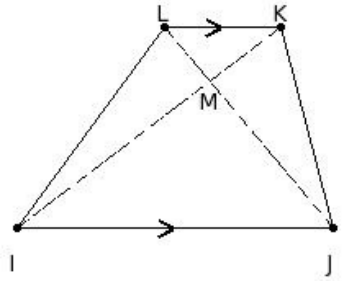
In the given figure, three lines l , m and n are such that l ∥ m ∥ n.

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



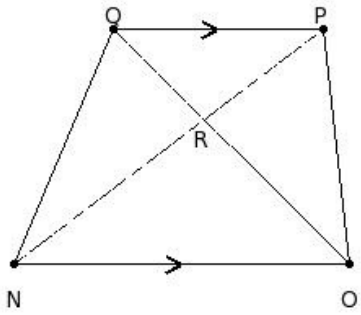
(i) ∠DAF (ii) ∠EHF (iii) ∠AFD (iv) ∠HFE (v) ∠CFA

22. In the given figure, IJKL is a trapezium in which
IJ ∥ KL and the diagonals JL and IK intersect at M.
If $MI = (4x+6)$ cm, $JM = (5x+6)$ cm, $MK = (2x+16)$ cm and
$LM = (3x+10)$ cm, find the value of x



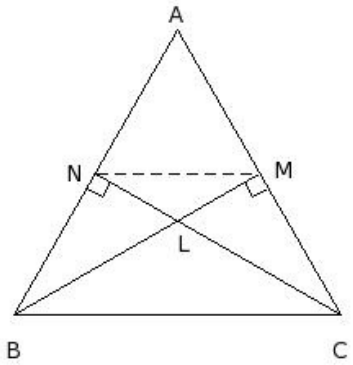
(i) (-1,18) (ii) (20,1) (iii) (2,18) (iv) (0,19) (v) (-1,17)

23. In the given figure, NOPQ is a trapezium in which NO ∥ PQ and the diagonals OQ and NP intersect at R. △RPQ ~



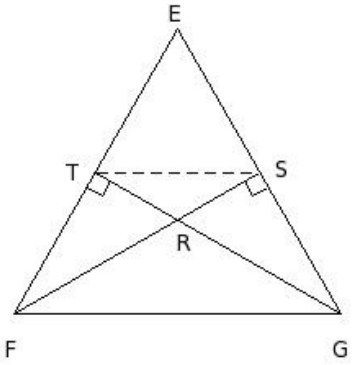
(i) △QNO (ii) △RNO (iii) △ROP (iv) △OPQ (v) △RQN

24. In the given figure, the altitudes MB and CN of △ABC meet at L. △NBL ~



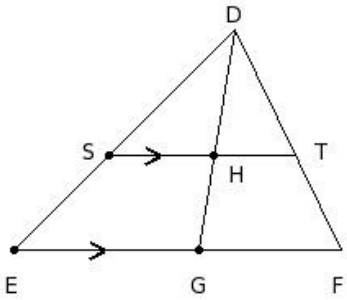
(i) △MCL (ii) △LBC (iii) △NBC (iv) △MCB (v) △LNM

25. In the given figure, the altitudes SF and GT of △EFG meet at R. ∠GRF =



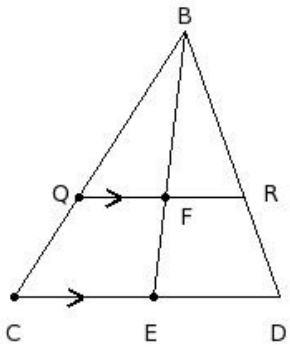
(i) ∠TRS (ii) ∠FGR (iii) ∠RFG (iv) ∠RST (v) ∠STR

26. In the given figure, ST ∥ EF , and median DG bisects ST.
If DE = 19 cm, DG = 19.1 cm and DS = 10.86 cm, SE =



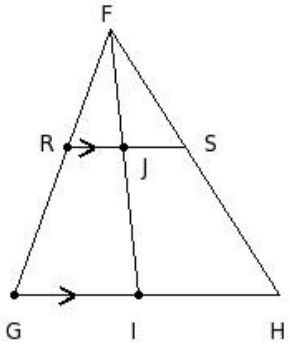
(i) 8.14 cm (ii) 7.14 cm (iii) 9.14 cm (iv) 10.14 cm (v) 6.14 cm

27. In the given figure, QR ∥ CD , and median BE bisects QR.
If BE = 16.1 cm, BD = 17 cm and BF = 10.06 cm, FE =



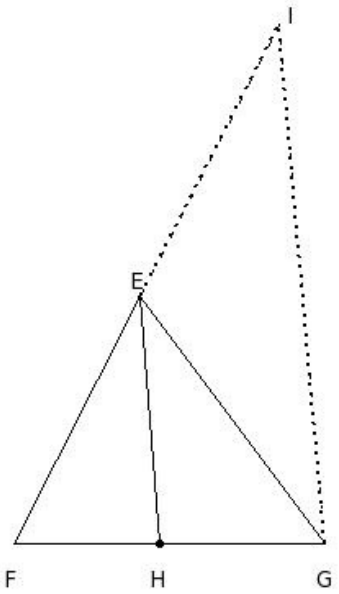
(i) 4.04 cm (ii) 8.04 cm (iii) 6.04 cm (iv) 5.04 cm (v) 7.04 cm

28. In the given figure, RS ∥ GH , and median FI bisects RS. △FIH ~



(i) △GHF (ii) △FJS (iii) △FGH (iv) △FGI (v) △FRJ

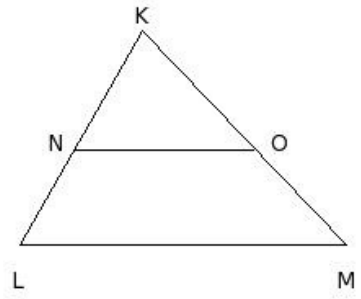
29. In the given figure, △EFG is a triangle in which EH is the internal bisector of ∠E and GI ∥ HE meeting FE produced at I . ∠HEF =



(i) ∠EGI (ii) ∠HGE (iii) ∠FHE (iv) ∠EHG (v) ∠IEG

30. In the given figure, N and O are points on the sides KL and KM respectively of △KLM.For which of the following cases, NO ∥ LM

a) KL = 15 cm, KN = 10.33 cm, KM = 18 cm and OM = 8 cm
b) KL = 15 cm, NL = 6.67 cm, KO = 12 cm and KM = 18 cm
c) KL = 15 cm, NL = 6.67 cm, KM = 18 cm and KO = 10 cm
d) KN = 8.33 cm, NL = 6.67 cm, KO = 10 cm and OM = 8 cm



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

31. Which of the following are true?

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

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

32. Which of the following are true?

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

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

33. Which of the following are true?

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

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

34. Which of the following are true?

a) Area of the union of two polygonal region is the sum of the individual area.
b) A polygonal region can be divided into a finite number of triangles in a unique way.
c) 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.
d) Area of the union of two polygonal region is not equal to the sum of the individual area.

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

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

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

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

36. Which of the following are true?

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

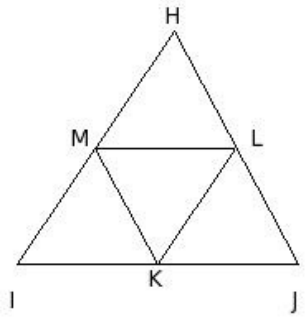
(i) {a,d} (ii) {a,b} (iii) {a,c} (iv) {b,c,d} (v) {a,b,c}

37. Which of the following are true?

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

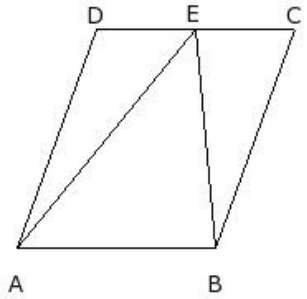
(i) {b,a,c} (ii) {a,c,d} (iii) {b,c} (iv) {b,d} (v) {b,a}

38. In the given figure, the area of the $\triangle$HIJ is x sq.cm. K,L,M are the mid-points of the sides IJ , JH and HI respectively. The area of the $\triangle$KLM is



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

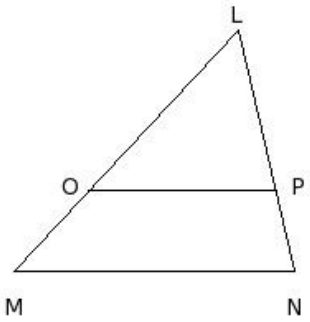
39. In the given figure, the parallelogram ABCD and the triangle $\triangle$EAB are on the same bases and between the same parallels.
The area of the $\triangle$EAB is x sq.cm. The area of the parallelogram is



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

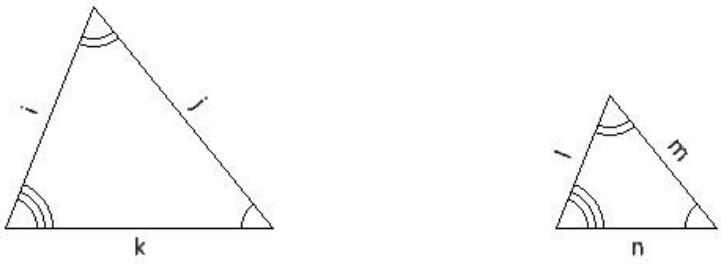
(iv) thrice the area of the triangle (v) $\frac{5}{4}$ the area of the triangle

40. In the given $\triangle LMN$, $OP \parallel MN$. If $LO : OM = 13.33 \text{ cm} : 6.67 \text{ cm}$ and $LN = 15 \text{ cm}$, $PN =$



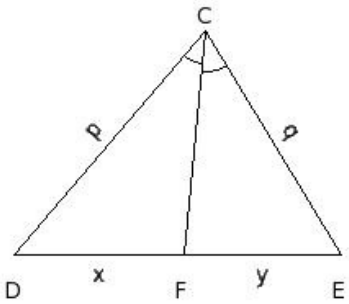
(i) 6.00 cm (ii) 5.00 cm (iii) 4.00 cm (iv) 3.00 cm (v) 7.00 cm

41. In the given two similar triangles, if $i = 15 \text{ cm}$, $j = 18 \text{ cm}$, $k = 17 \text{ cm}$, $m = 10.8 \text{ cm}$, find n



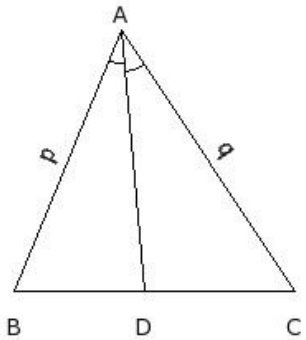
(i) 11.20 cm (ii) 12.20 cm (iii) 10.20 cm (iv) 9.20 cm (v) 8.20 cm

42. In the given figure, given $\angle FCD = \angle ECF$, $x : y = 10.59 \text{ cm} : 9.41 \text{ cm}$ and $q = 16 \text{ cm}$, find $p =$



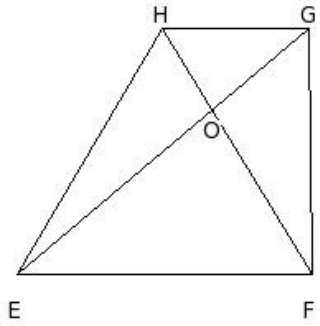
(i) 18.00 cm (ii) 19.00 cm (iii) 17.00 cm (iv) 20.00 cm (v) 16.00 cm

43. In the given figure, given $\angle DAB = \angle CAD$, $p = 8.03 \text{ cm}$, $q = 8.97 \text{ cm}$ and $BC = 17 \text{ cm}$, find $DC =$



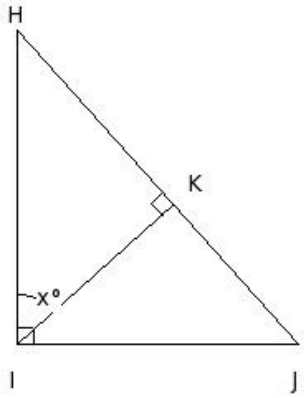
(i) 8.97 cm (ii) 10.97 cm (iii) 6.97 cm (iv) 9.97 cm (v) 7.97 cm

44. In the given figure, EFGH is a trapezium where OE = 13 cm , OF = 13 cm and OG = 4 cm . Find OH =



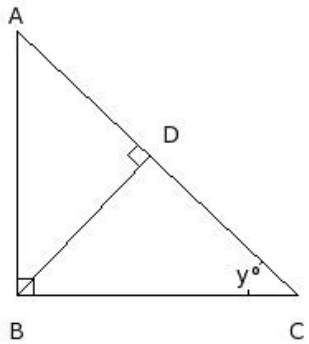
(i) 5 cm (ii) 6 cm (iii) 3 cm (iv) 2 cm (v) 4 cm

45. In the given figure, ∠KHI = 42.14°, find the value of x =



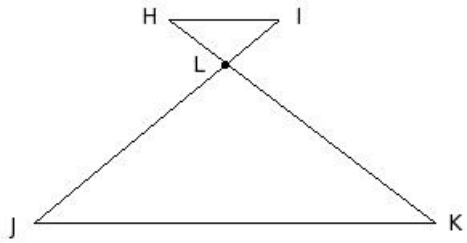
(i) 48.86° (ii) 49.86° (iii) 45.86° (iv) 47.86° (v) 46.86°

46. In the given figure, ∠DBC = 46.38°, find the value of y =



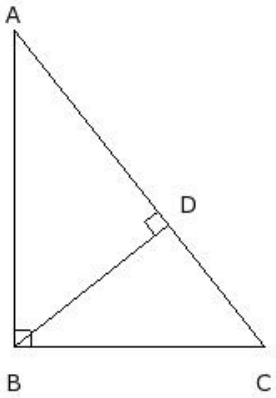
(i) 43.62° (ii) 41.62° (iii) 42.62° (iv) 44.62° (v) 45.62°

47. In the given figure, if HI ∥ JK then



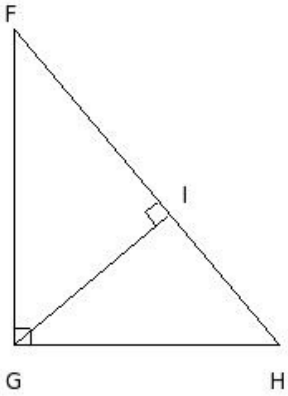
(i) △LHI ~ △LJK (ii) △HIL ~ △LKJ (iii) △HIL ~ △LJK (iv) △HIL ~ △KJL (v) △LIH ~ △LKJ

48. In the given figure, △ABC is right-angled at B. Also, BD ⊥ AC. If BC = 15 cm, BD = 11.77 cm, then find AB.



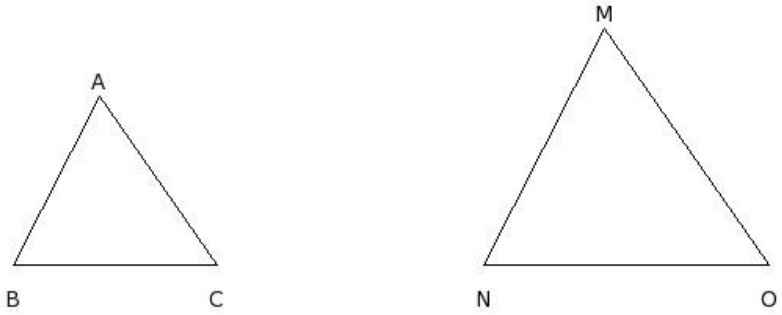
(i) 19.00 cm (ii) 21.00 cm (iii) 17.00 cm (iv) 20.00 cm (v) 18.00 cm

49. In the given figure, △FGH is right-angled at G. Also, GI ⊥ FH. If IH = 10.3 cm, GI = 12.26 cm, then find FI.



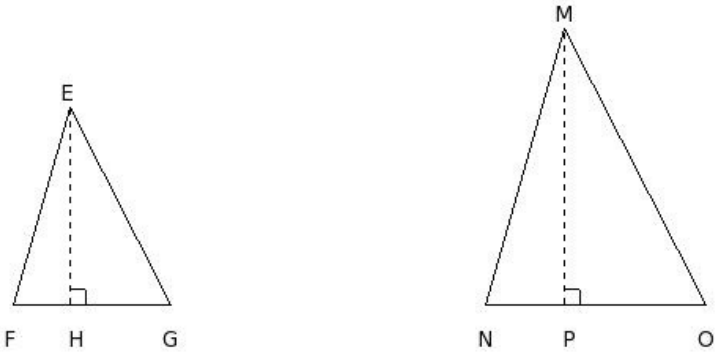
(i) 13.60 cm (ii) 12.60 cm (iii) 15.60 cm (iv) 16.60 cm (v) 14.60 cm

50. In the given figure, △ABC ~ △MNO and AB = 12 cm, MN = 16.8 cm.
If the area of the △ABC = 69.2 sq.cm, find the area of the △MNO



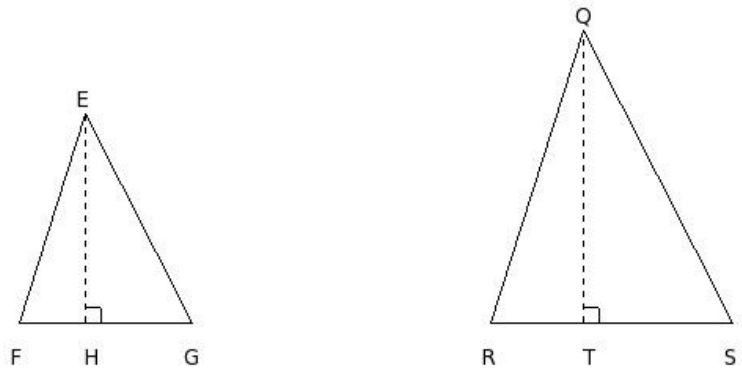
(i) 136.62 sq.cm (ii) 134.62 sq.cm (iii) 137.62 sq.cm (iv) 135.62 sq.cm (v) 133.62 sq.cm

51. In the given figure, △EFG ~ △MNO and FG = 10 cm , NO = 14 cm and
MP = 17.47 cm, find the area of the △EFG



(i) 63.39 sq.cm (ii) 60.39 sq.cm (iii) 62.39 sq.cm (iv) 64.39 sq.cm (v) 61.39 sq.cm

52. In the given figure, △EFG & △QRS are similar triangles. If the ratio of the heights EH : QT = 13 : 19, then the ratio of their areas is



(i) 168 sq.cm : 361 sq.cm (ii) 169 sq.cm : 364 sq.cm (iii) 170 sq.cm : 361 sq.cm (iv) 169 sq.cm : 359 sq.cm

(v) 169 sq.cm : 361 sq.cm

53. In the given figure, points H , I and J are the mid-points of sides FG, GE and EF of △EFG. Which of the following are true?

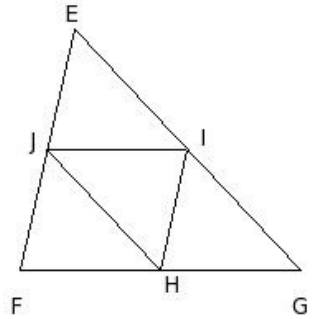
a) All four small triangles have equal areas

b) Area of △EFG = 4 times area of △HIJ

c) Area of $\triangle EFG = \frac{1}{3}$ area of △HIJ

d) Area of trapezium FGIJ is $\frac{1}{4}$ the area of △EFG

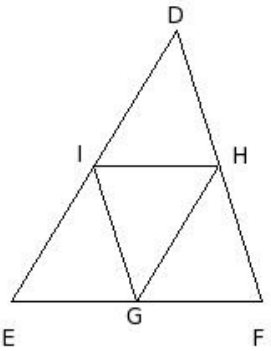
e) Area of trapezium FGIJ is thrice the area of △EJI



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

54. In the given figure, points G , H and I are the mid-points of sides EF, FD and DE of △DEF. Which of the following are true?

a) △GIH ~ △DEF
b) △HGF ~ △DEF
c) △DIH ~ △DEF
d) △GHI ~ △DEF
e) △IEG ~ △DEF

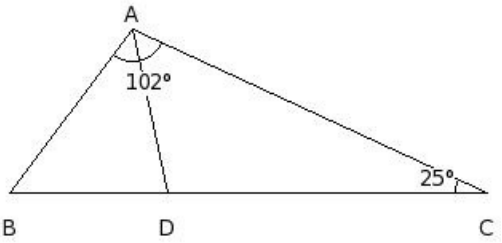


(i) {b,c,d,e} (ii) {a,c} (iii) {a,e,b} (iv) {a,d} (v) {a,b}

55. The perimeters of two similar triangles are 27 cm and 20 cm respectively. If one side of the first triangle is 16 cm, find the length of the corresponding side of the second triangle.

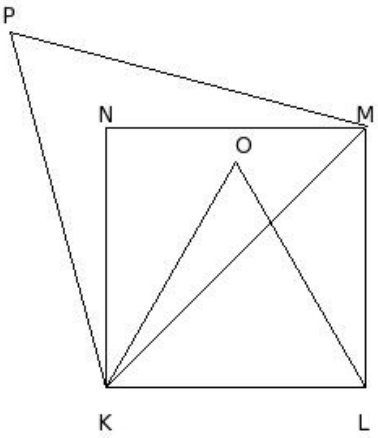
(i) 13.85 cm (ii) 10.85 cm (iii) 9.85 cm (iv) 12.85 cm (v) 11.85 cm

56. In the given figure, D is a point on side BC of △ABC such that ∠CAB = ∠ADC = 102° , ∠DCA = 25°. Find ∠CAD



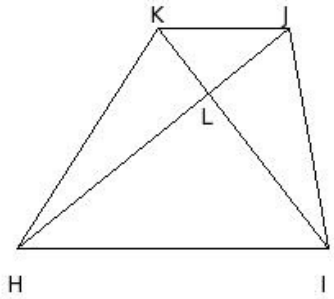
(i) 53° (ii) 54° (iii) 51° (iv) 52° (v) 55°

57. KLMN is a square and △KLO is an equilateral triangle. Also, △KMP is an equilateral triangle. If area of △KLO is 'a' sq.units, then the area of △KMP is



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

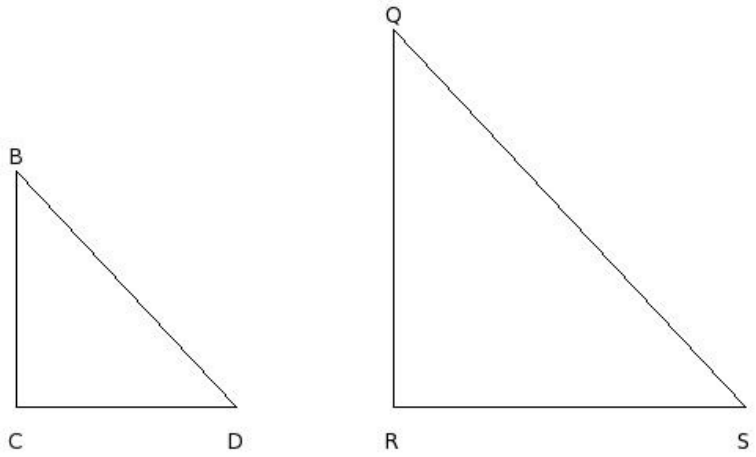
58. HIJK is a cyclic trapezium. Diagonals IK and HJ intersect at L. If KH = 16 cm, find IJ



(i) 17 cm (ii) 15 cm (iii) 14 cm (iv) 16 cm (v) 18 cm

A vertical stick 15 m long casts a shadow of 14 m long on the ground.

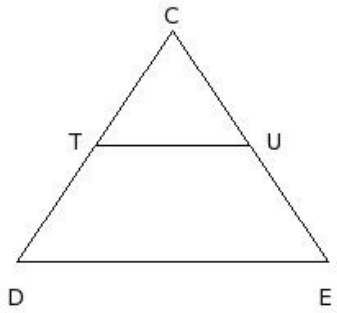
59. At the same time, a tower casts the shadow 112 m long on the ground.
Find the height of the tower.



(i) 122 m (ii) 120 m (iii) 119 m (iv) 118 m (v) 121 m

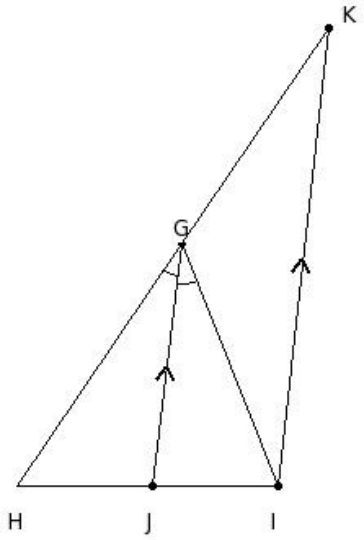
In the given figure, $\triangle CDE$, $TU \parallel DE$ such that

60. area of $\triangle CTU$ = area of $TUED$. Find $\frac{CT}{CD}$



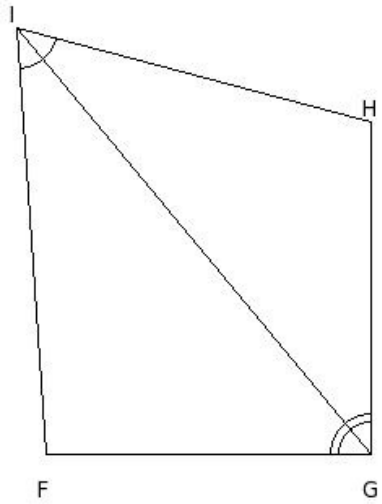
(i) $\frac{1}{2}\sqrt{\frac{4}{2}}$ (ii) $\frac{1}{2}\sqrt{2}$ (iii) 1 (iv) $\frac{1}{2}\sqrt{5}$ (v) $\frac{1}{2}\sqrt{\frac{1}{2}}$

61. In the given figure, ∠JGH = ∠IGJ and GJ ∥ KI and GH = 18 cm, HJ = 8 cm and JI = 8 cm. Find GK



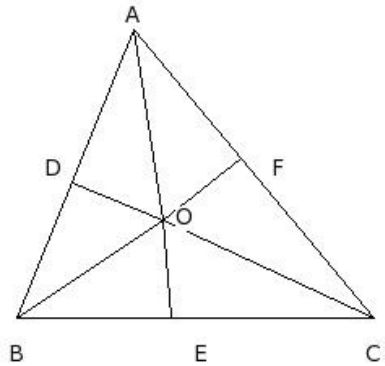
(i) 16.00 cm (ii) 19.00 cm (iii) 18.00 cm (iv) 17.00 cm (v) 20.00 cm

62. In the given figure, GI is the angular bisector of ∠G & ∠I
FG = 20 cm, GH = 21 cm and HI = 23 cm. Find IF



(i) 21.90 cm (ii) 22.90 cm (iii) 19.90 cm (iv) 20.90 cm (v) 23.90 cm

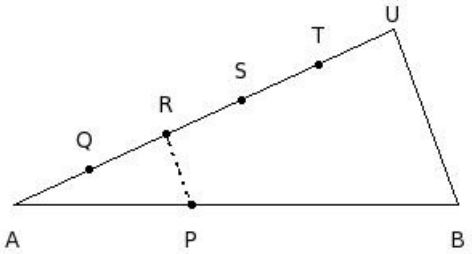
63. In the given figure, ABC is a triangle and 'O' is a point inside △ABC. The angular bisector of ∠BOA, ∠COB & ∠AOC meet AB, BC & CA at D, E & F respectively . Then



(i) AD . BE . CF = DB . EC . FA (ii) AD . BE . CF = AB . BC . CA (iii) AD . BE . CF = DE . EF . FD

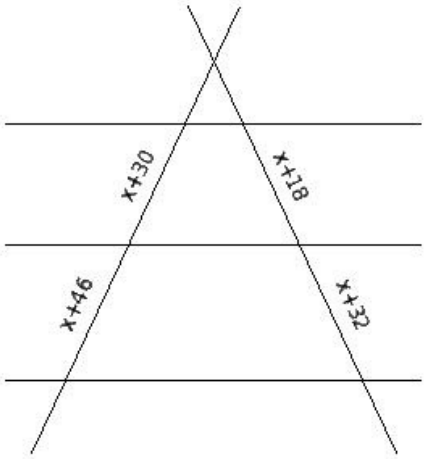
(iv) AD . BE . CF = OD . OE . OF (v) AD . BE . CF = OA . OB . OC

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

65. From the given figure and values, find x

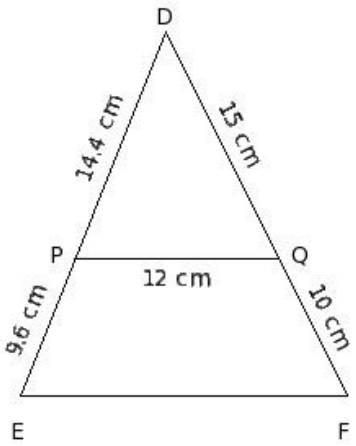


(i) (66,65) (ii) (68,68) (iii) (67,67) (iv) (66,66) (v) (69,66)

66. The ratio of the bases of two triangles ABC and DEF is 10:8 .
If the triangles are equal in area, then the ratio of their heights is

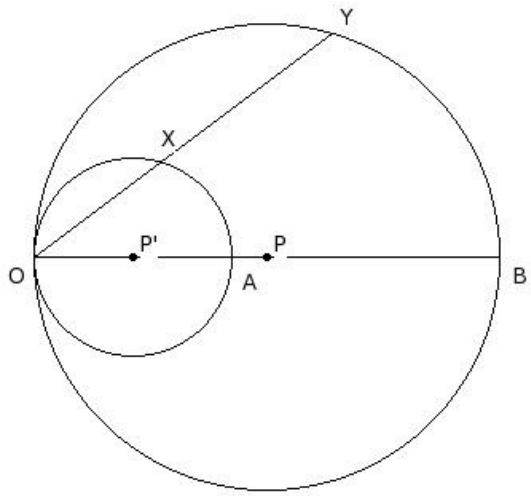
(i) 10:11 (ii) 11:8 (iii) 10:6 (iv) 8:10 (v) 9:8

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



(i) 19.0 cm (ii) 20.0 cm (iii) 22.0 cm (iv) 21.0 cm (v) 18.0 cm

68. In the given figure, the two circles touch each other internally.
Diameter OB passes through the centre of the smaller circle.
$OX = 10$ cm, $OY = 23$ cm and radius of the inner circle is 6.2 cm.
Find the radius of the outer circle.



(i) 12.26 cm (ii) 15.26 cm (iii) 13.26 cm (iv) 14.26 cm (v) 16.26 cm

Assignment Key

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