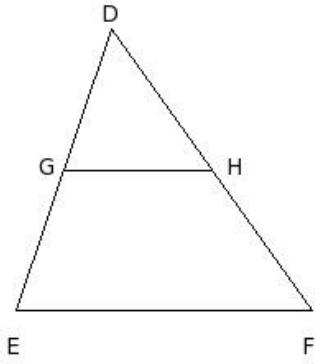
EduSahara™ Assignment

Name : Similarity of Triangles

Chapter : Triangles

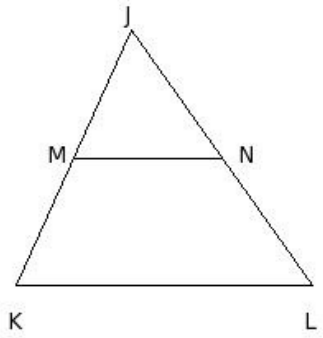
Grade : CBSE Grade X

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



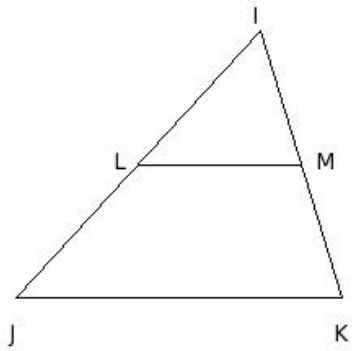
(i) $\frac{DE}{2}$ (ii) EF (iii) DG (iv) $\frac{EF}{2}$ (v) $\frac{FD}{2}$

2. In the given figure $\triangle JKL$,
M is the mid-point of $\overline{JK}$ and $\overline{MN} \parallel \overline{KL}$, then JM =



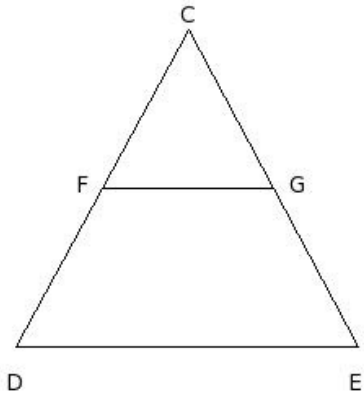
(i) KL (ii) JN (iii) $\frac{KL}{2}$ (iv) $\frac{LJ}{2}$ (v) $\frac{JK}{2}$

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



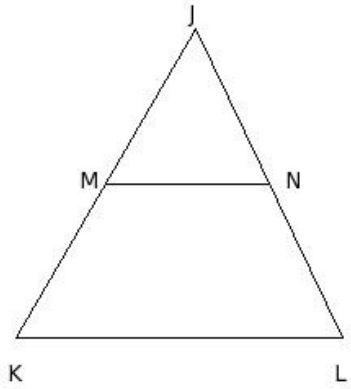
(i) IJ (ii) KI (iii) MK (iv) LJ (v) IM

4. In the given figure $\triangle CDE$,
F is the mid-point of $\overline{CD}$ and $\overline{FG} \parallel \overline{DE}$, then FD =



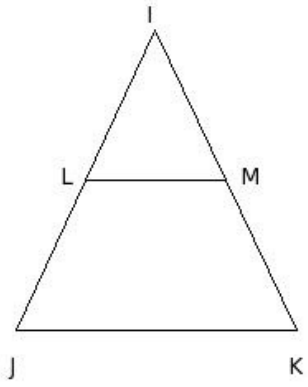
(i) GE (ii) CD (iii) CG (iv) EC (v) CF

5. In the given figure $\triangle JKL$,
M is the mid-point of $\overline{JK}$ and $\overline{MN} \parallel \overline{KL}$, then JN =



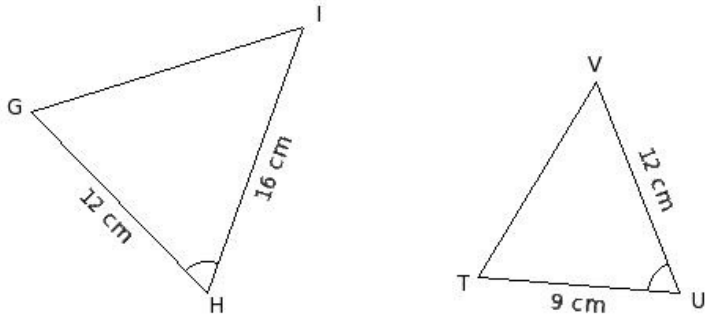
(i) MK (ii) JK (iii) JM (iv) NL (v) LJ

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



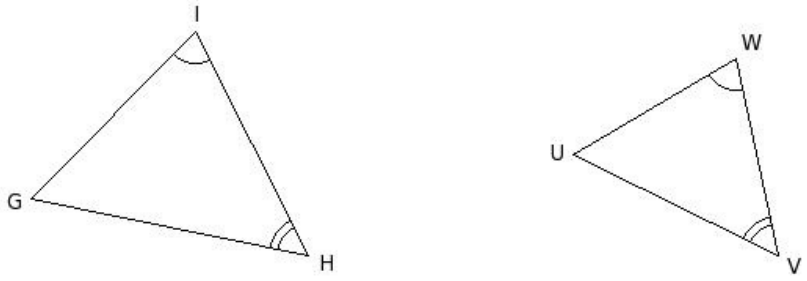
(i) KI (ii) IL (iii) IM (iv) IJ (v) LJ

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



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

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



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

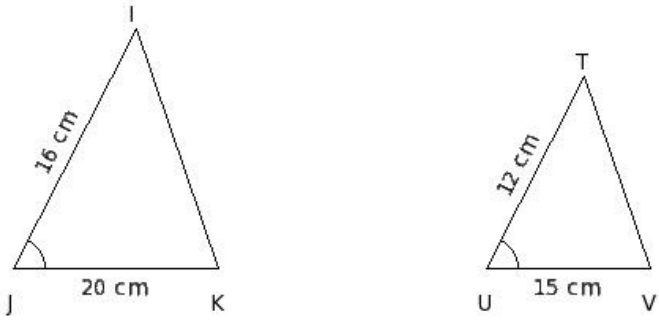
9. Identify the property by which the two given triangles are similar

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

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

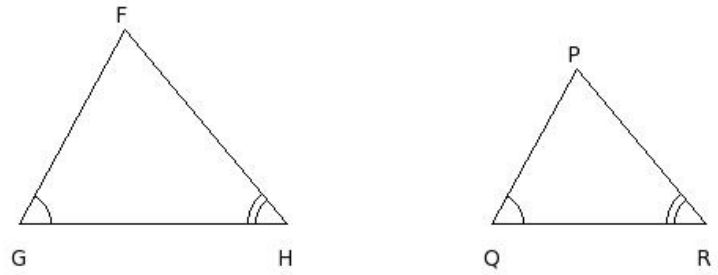
10. $\angle J = \angle U$ and $\frac{IJ}{TU} = \frac{JK}{UV}$.

Identify the property by which the two triangles are similar



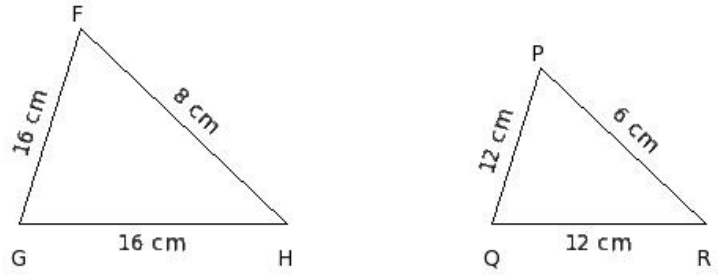
(i) SSS Similarity (ii) SAS Similarity (iii) AAA Similarity (iv) not similar

11. In the given figure, $\triangle FGH$ and $\triangle PQR$ are such that
$\angle G = \angle Q$ and $\angle H = \angle R$.
Identify the property by which the two triangles are similar



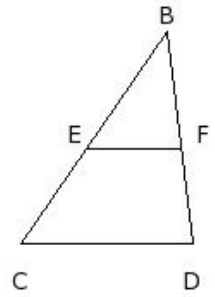
(i) AAA Similarity (ii) SSS Similarity (iii) SAS Similarity (iv) not similar

12. In the given figure, $\triangle FGH$ and $\triangle PQR$ are such that
$\frac{FG}{PQ} = \frac{GH}{QR} = \frac{HF}{RP}$.
Identify the property by which the two triangles are similar



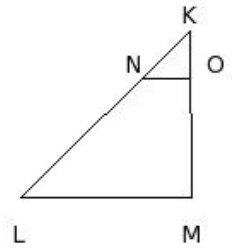
(i) SAS Similarity (ii) AAA Similarity (iii) not similar (iv) SSS Similarity

13. In the given figure, $EF \parallel CD$. If $\frac{BE}{EC} = \frac{5}{4}$ and $BD = 12.9$ cm, find BF



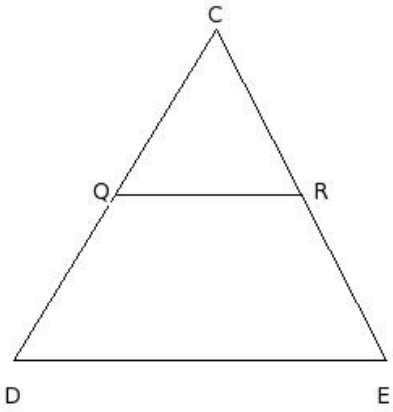
(i) 7.17 cm (ii) 5.17 cm (iii) 9.17 cm (iv) 6.17 cm (v) 8.17 cm

14. In the given figure, $NO \parallel LM$.
If $KN = 4.26$ cm, $KL = 14.9$ cm and $KM = 10.5$ cm, find KO



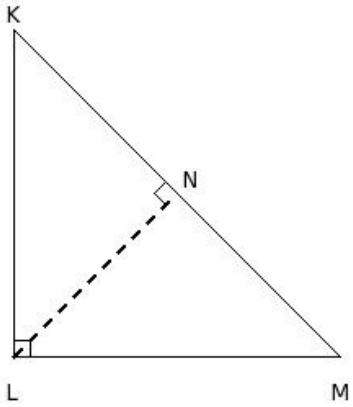
(i) 5.00 cm (ii) 1.00 cm (iii) 4.00 cm (iv) 2.00 cm (v) 3.00 cm

15. In the given figure, QR ∥ DE and CR = 13.8 cm, CE = 23 cm and QR = 13.8 cm, find DE



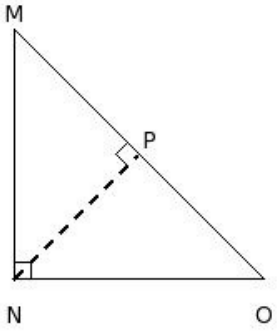
(i) 21.0 cm (ii) 22.0 cm (iii) 24.0 cm (iv) 23.0 cm (v) 25.0 cm

16. In the given figure, △KLM is isosceles right-angled at L and LN ⊥ MK. ∠N =



(i) ∠L (ii) ∠O (iii) ∠M (iv) ∠K (v) ∠P

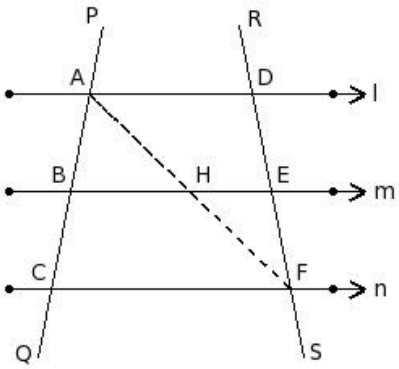
17. In the given figure, △MNO is isosceles right-angled at N and NP ⊥ OM. ∠NPM =



(i) ∠MNP (ii) ∠OPN (iii) ∠PMN (iv) ∠PNO (v) ∠NOP

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 ~

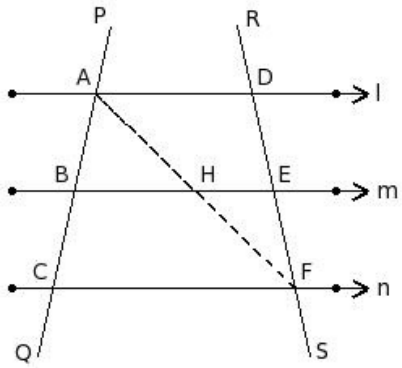


(i) △FEH (ii) △ABH (iii) △DCF (iv) △DAE (v) △ACF

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.

∠FAC =

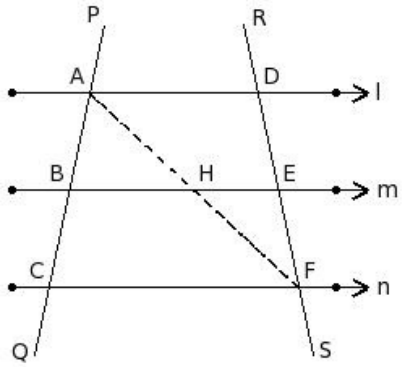


(i) ∠FDA (ii) ∠HFE (iii) ∠HAB (iv) ∠FEH (v) ∠AFD

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 =

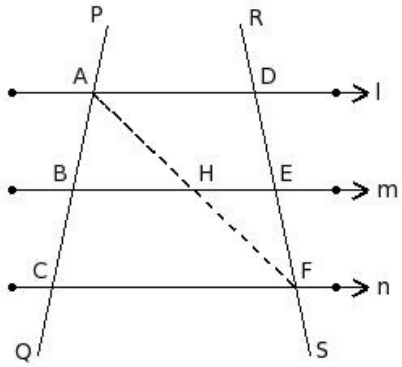


(i) ∠FEH (ii) ∠ACF (iii) ∠FDA (iv) ∠EHF (v) ∠DAF

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

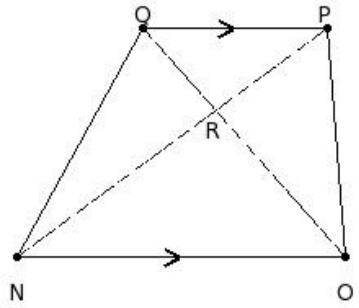
21. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.

∠BHA =



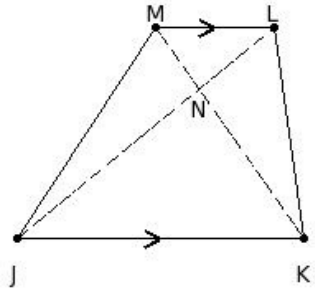
(i) ∠AFD (ii) ∠CFA (iii) ∠DAF (iv) ∠EHF (v) ∠HFE

22. In the given figure, NOPQ is a trapezium in which NO ∥ PQ and the diagonals OQ and NP intersect at R. If $RN = (11x+3)$ cm, $OR = (7x+3)$ cm, $RP = (3x+7)$ cm and $QR = (2x+4)$ cm, find the value of x



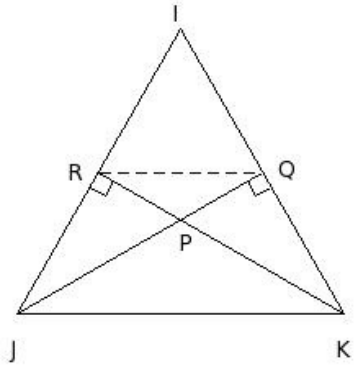
(i) (9,-2) (ii) (10,0) (iii) (9,-1) (iv) (1,11) (v) (11,-1)

23. In the given figure, JKLM is a trapezium in which JK ∥ LM and the diagonals KM and JL intersect at N. △NLM ~



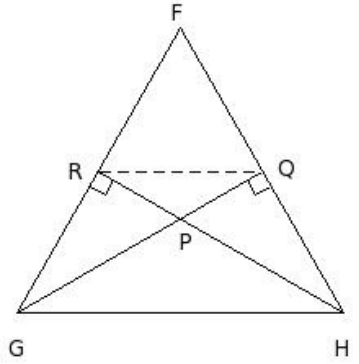
(i) △NMJ (ii) △NJK (iii) △KLM (iv) △NKL (v) △MJK

24. In the given figure, the altitudes QJ and KR of △IJK meet at P. △RJK ~



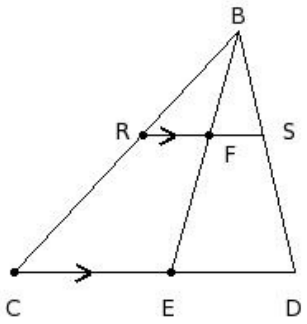
(i) △PJK (ii) △QKP (iii) △PRQ (iv) △RJP (v) △QKJ

25. In the given figure, the altitudes QG and HR of △FGH meet at P. ∠QPH =



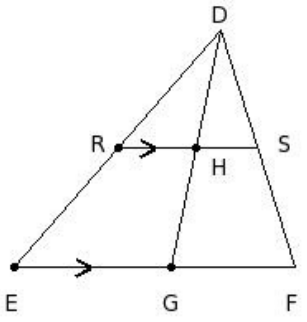
(i) ∠RGP (ii) ∠PRG (iii) ∠HQP (iv) ∠PHQ (v) ∠GPR

26. In the given figure, RS ∥ CD , and median BE bisects RS.
If BC = 20 cm, BE = 20 cm and BR = 8.57 cm, BF =



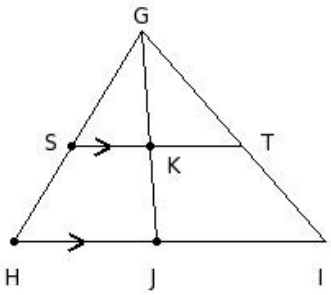
(i) 9.57 cm (ii) 8.57 cm (iii) 7.57 cm (iv) 10.57 cm (v) 6.57 cm

27. In the given figure, RS ∥ EF , and median DG bisects RS.
If DG = 14.6 cm, DF = 15 cm and DH = 7.3 cm, HG =



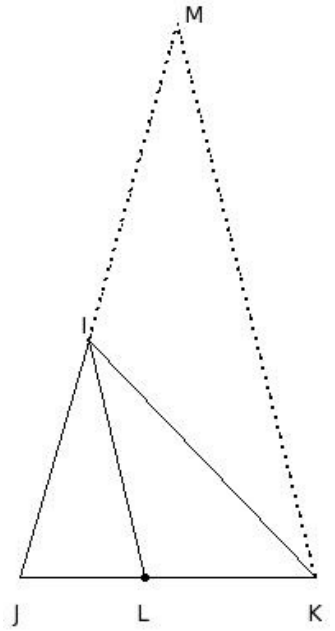
(i) 7.30 cm (ii) 9.30 cm (iii) 5.30 cm (iv) 8.30 cm (v) 6.30 cm

28. In the given figure, ST ∥ HI , and median GJ bisects ST. △GSK ~



(i) △GJI (ii) △GHJ (iii) △HIG (iv) △GKT (v) △GHI

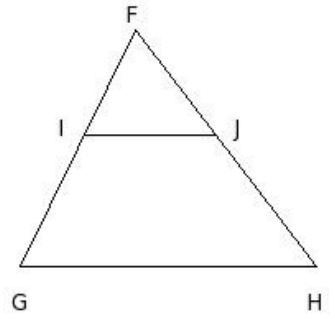
29. In the given figure, △IJK is a triangle in which IL is the internal bisector of ∠I and KM ∥ LI meeting JI produced at M . ∠IKM =



(i) ∠JLI (ii) ∠LKI (iii) ∠MIK (iv) ∠ILK (v) ∠KMI

30. In the given figure, I and J are points on the sides FG and FH respectively of △FGH.For which of the following cases, IJ ∥ GH

a) FG = 16 cm, IG = 8.89 cm, FJ = 10 cm and FH = 18 cm
b) FI = 7.11 cm, IG = 8.89 cm, FJ = 8 cm and JH = 10 cm
c) FG = 16 cm, IG = 8.89 cm, FH = 18 cm and FJ = 8 cm
d) FG = 16 cm, FI = 9.11 cm, FH = 18 cm and JH = 10 cm



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

31. Which of the following are true?

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

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

32. Which of the following are true?

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

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

33. Which of the following are true?

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

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

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

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

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 sides are proportional.
d) The corresponding angles are equal.

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

36. Which of the following are true?

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

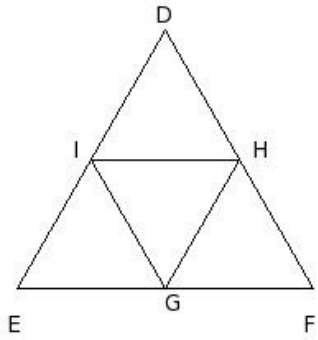
(i) {c,b} (ii) {c,d} (iii) {c,a} (iv) {c,a,b} (v) {a,b,d}

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

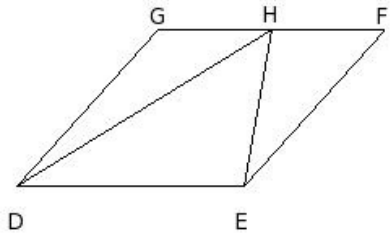
38. In the given figure, the area of the △DEF is x sq.cm. G,H,I are the mid-points of the sides EF , FD and DE respectively. The area of the △GHI is



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

(v) $\frac{1}{3}$ of area of △DEF

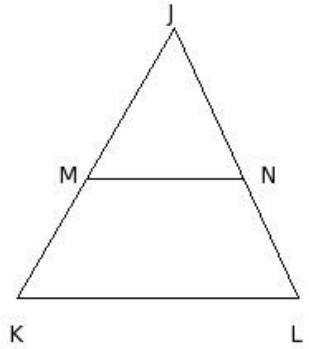
39. In the given figure, the parallelogram DEFG and the triangle △HDE are on the same bases and between the same parallels.
The area of the △HDE is x sq.cm. The area of the parallelogram is



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

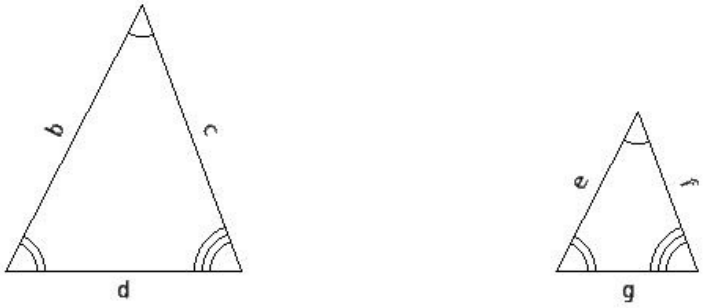
(iv) thrice the area of the triangle (v) $\frac{5}{4}$ the area of the triangle

40. In the given △JKL, MN ∥ KL. If JM : MK = 10.56 cm : 8.44 cm and JL = 18 cm, NL =



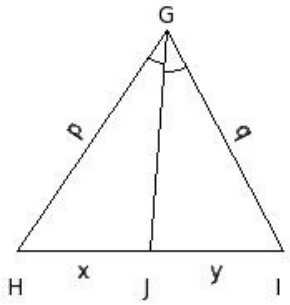
(i) 9.00 cm (ii) 7.00 cm (iii) 10.00 cm (iv) 8.00 cm (v) 6.00 cm

41. In the given two similar triangles, if b = 19 cm, c = 18 cm, d = 15 cm, f = 10.8 cm, find g



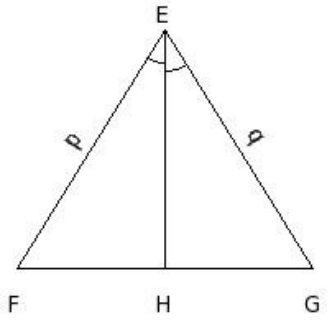
(i) 8.00 cm (ii) 11.00 cm (iii) 10.00 cm (iv) 7.00 cm (v) 9.00 cm

42. In the given figure, given ∠JGH = ∠IGJ, x : y = 8.26 cm : 7.74 cm and p = 16 cm, find q =



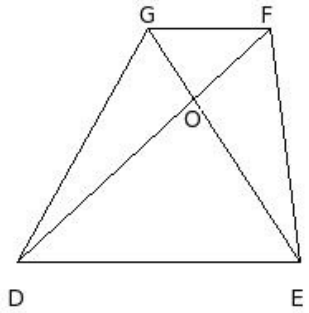
(i) 13.00 cm (ii) 16.00 cm (iii) 17.00 cm (iv) 15.00 cm (v) 14.00 cm

43. In the given figure, given ∠HEF = ∠GEH, p = 9 cm, q = 9 cm and FG = 18 cm, find HG =



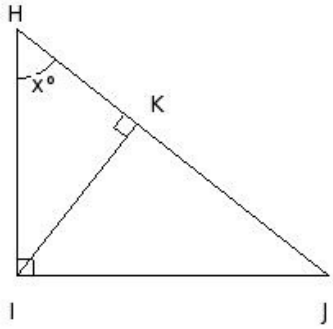
(i) 9.00 cm (ii) 11.00 cm (iii) 10.00 cm (iv) 7.00 cm (v) 8.00 cm

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



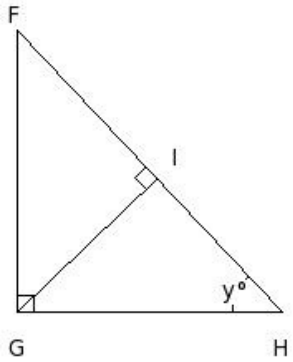
(i) 15 cm (ii) 11 cm (iii) 12 cm (iv) 13 cm (v) 14 cm

45. In the given figure, ∠HIK = 38.43°, find the value of x =



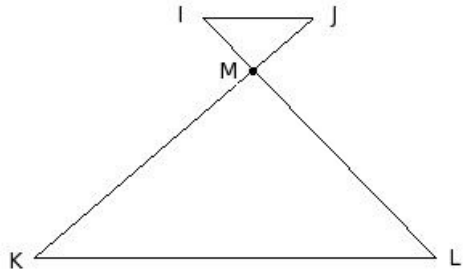
(i) 52.57° (ii) 50.57° (iii) 51.57° (iv) 53.57° (v) 49.57°

46. In the given figure, ∠IGH = 43.62°, find the value of y =



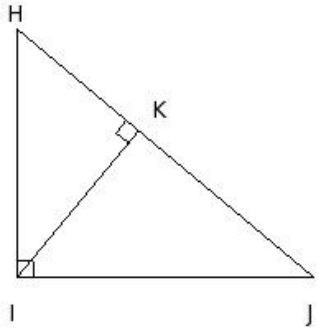
(i) 47.38° (ii) 45.38° (iii) 48.38° (iv) 44.38° (v) 46.38°

47. In the given figure, if IJ ∥ KL then



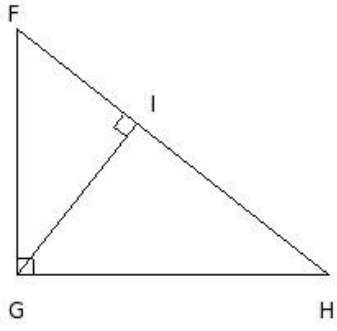
(i) △IJM ~ △LKM (ii) △MIJ ~ △MKL (iii) △IJM ~ △MLK (iv) △MJI ~ △MLK (v) △IJM ~ △MKL

48. In the given figure, △HIJ is right-angled at I. Also, IK ⊥ HJ. If HI = 15 cm, IK = 11.52 cm, then find IJ.



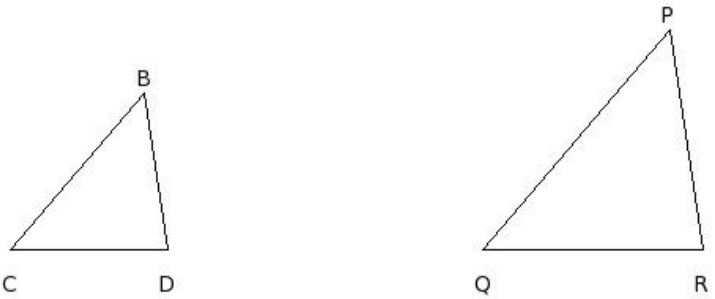
(i) 20.00 cm (ii) 18.00 cm (iii) 19.00 cm (iv) 17.00 cm (v) 16.00 cm

49. In the given figure, △FGH is right-angled at G. Also, GI ⊥ FH. If FI = 9.3 cm, GI = 11.77 cm, then find IH.



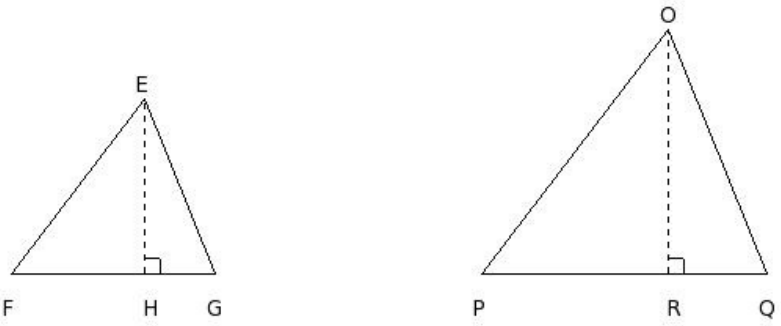
(i) 13.90 cm (ii) 15.90 cm (iii) 14.90 cm (iv) 16.90 cm (v) 12.90 cm

50. In the given figure, △BCD ~ △PQR and BC = 13 cm, PQ = 18.2 cm.
If the area of the △PQR = 96.82 sq.cm, find the area of the △BCD



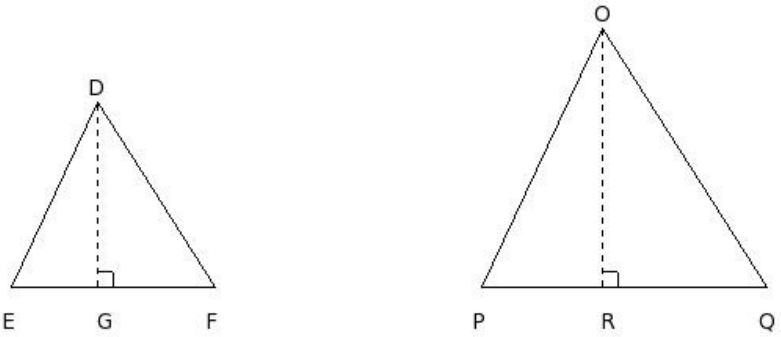
(i) 47.40 sq.cm (ii) 49.40 sq.cm (iii) 48.40 sq.cm (iv) 50.40 sq.cm (v) 51.40 sq.cm

51. In the given figure, △EFG ~ △OPQ and FG = 13 cm , PQ = 18.2 cm and
EH = 11.12 cm, find the area of the △OPQ



(i) 141.72 sq.cm (ii) 139.72 sq.cm (iii) 143.72 sq.cm (iv) 140.72 sq.cm (v) 142.72 sq.cm

52. In the given figure, △DEF & △OPQ are similar triangles. If the ratio of the heights DG : OR = 12 : 17, then the ratio of their areas is



(i) 144 sq.cm : 289 sq.cm (ii) 143 sq.cm : 289 sq.cm (iii) 144 sq.cm : 291 sq.cm (iv) 144 sq.cm : 286 sq.cm

(v) 145 sq.cm : 289 sq.cm

53. In the given figure, points O , P and Q are the mid-points of sides MN, NL and LM of △LMN. Which of the following are true?

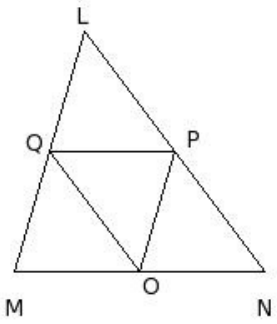
a) Area of $\triangle LMN = \frac{1}{3}$ area of $\triangle OPQ$

b) All four small triangles have equal areas

c) Area of △LMN = 4 times area of △OPQ

d) Area of trapezium MNPQ is thrice the area of △LQP

e) Area of trapezium MNPQ is $\frac{1}{4}$ the area of $\triangle LMN$



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

54. In the given figure, points J , K and L are the mid-points of sides HI, IG and GH of △GHI. Which of the following are true?

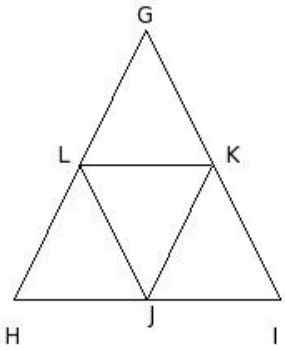
a) △JLK ~ △GHI

b) △KJI ~ △GHI

c) △LHJ ~ △GHI

d) △GLK ~ △GHI

e) △JKL ~ △GHI

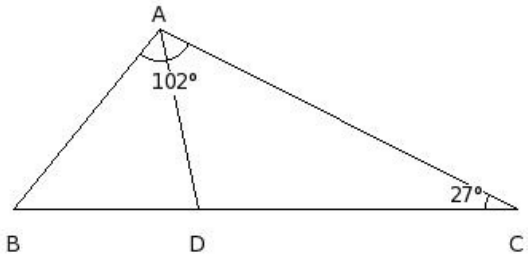


(i) {a,e,b} (ii) {a,d} (iii) {b,c,d,e} (iv) {a,b} (v) {a,c}

55. The perimeters of two similar triangles are 30 cm and 19 cm respectively. If one side of the first triangle is 9 cm, find the length of the corresponding side of the second triangle.

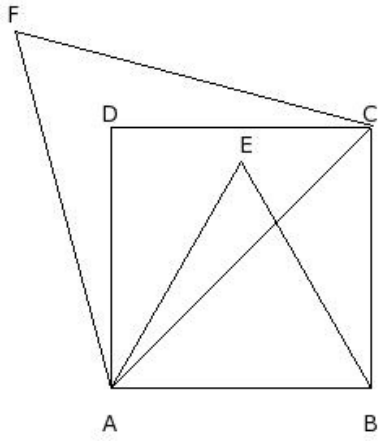
(i) 6.70 cm (ii) 3.70 cm (iii) 5.70 cm (iv) 4.70 cm (v) 7.70 cm

56. In the given figure, D is a point on side BC of △ABC such that ∠CAB = ∠ADC = 102° , ∠DCA = 27°. Find ∠CAD



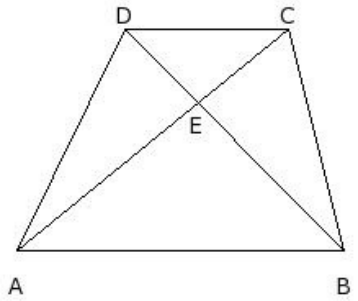
(i) 51° (ii) 53° (iii) 52° (iv) 49° (v) 50°

57. ABCD is a square and △ABE is an equilateral triangle. Also, △ACF is an equilateral triangle. If area of △ABE is 'a' sq.units, then the area of △ACF is



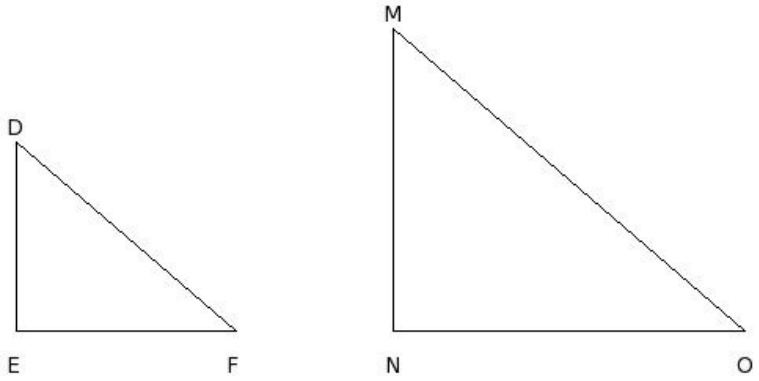
(i) $\frac{1}{2}\sqrt{3}$ a sq.units (ii) $\frac{1}{2}$ a sq.units (iii) a^2 sq.units (iv) $\sqrt{3}$ a sq.units (v) 2a sq.units

58. ABCD is a cyclic trapezium. Diagonals BD and AC intersect at E. If DA = 15 cm, find BC



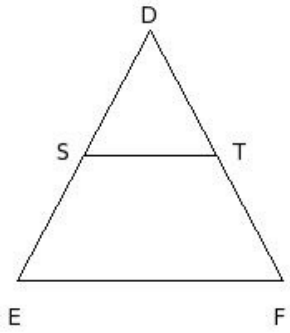
(i) 17 cm (ii) 13 cm (iii) 14 cm (iv) 15 cm (v) 16 cm

A vertical stick 12 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.



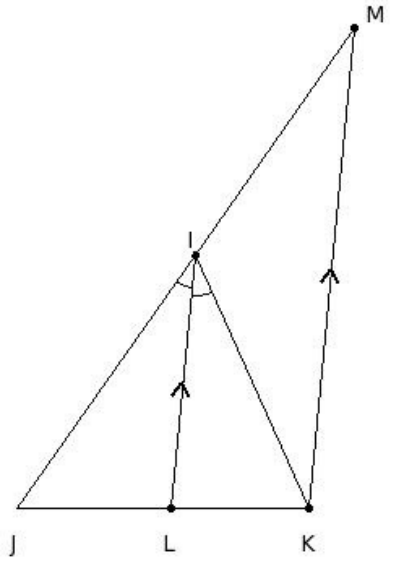
(i) 96 m (ii) 98 m (iii) 95 m (iv) 94 m (v) 97 m

60. In the given figure, $\triangle DEF$, ST ∥ EF such that area of $\triangle DST$ = area of STFE. Find $\frac{DS}{DE}$



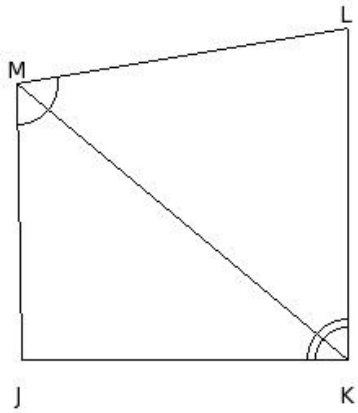
(i) $\frac{1}{2}\sqrt{-1}$ (ii) $\frac{1}{2}\sqrt{2}$ (iii) $\frac{1}{2}\sqrt{5}$ (iv) $\frac{1}{2}\frac{4}{\sqrt{2}}$ (v) 1

61. In the given figure, ∠LIJ = ∠KIL and IL ∥ MK and IJ = 19 cm, JL = 10 cm and LK = 9 cm. Find IM



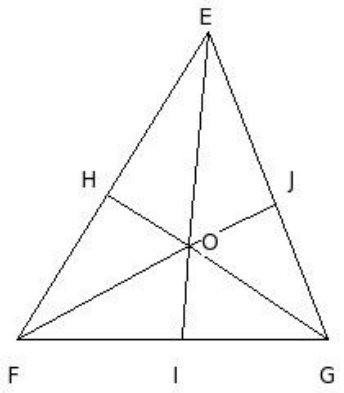
(i) 18.10 cm (ii) 15.10 cm (iii) 16.10 cm (iv) 17.10 cm (v) 19.10 cm

62. In the given figure, KM is the angular bisector of ∠K & ∠M
JK = 20 cm, KL = 20 cm and LM = 21 cm. Find MJ



(i) 23.00 cm (ii) 21.00 cm (iii) 19.00 cm (iv) 20.00 cm (v) 22.00 cm

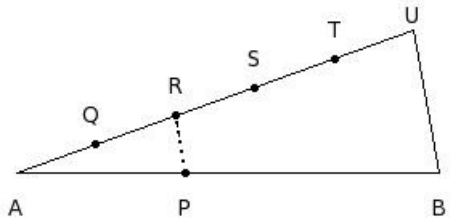
63. In the given figure, EFG is a triangle and 'O' is a point inside △EFG. The angular bisector of ∠FOE, ∠GOF & ∠EOG meet EF, FG & GE at H, I & J respectively . Then



(i) EH . FI . GJ = EF . FG . GE (ii) EH . FI . GJ = OE . OF . OG (iii) EH . FI . GJ = OH . OI . OJ

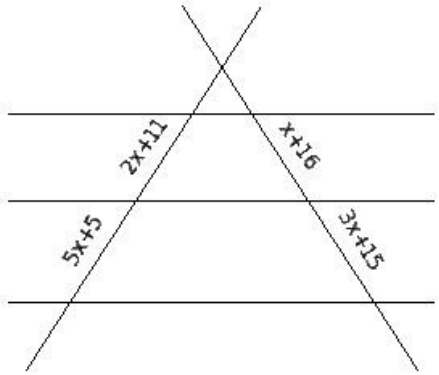
(iv) EH . FI . GJ = HF . IG . JE (v) EH . FI . GJ = HI . IJ . JH

64. In the given figure, if A, Q, R, S, T, U are equidistant and RP ∥ UB and AB = 26 cm and AP = 10 cm. Find PB



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

65. From the given figure and values, find x

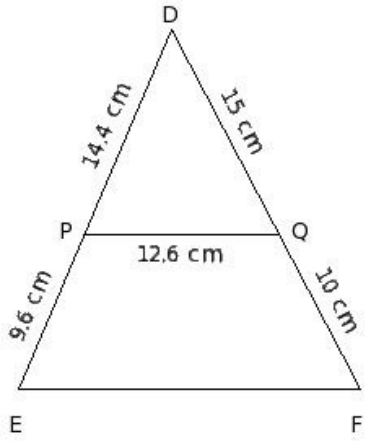


(i) (7,17) (ii) (5,16) (iii) (19,7) (iv) (5,17) (v) (6,18)

66. The ratio of the bases of two triangles ABC and DEF is 9:8 .
If the triangles are equal in area, then the ratio of their heights is

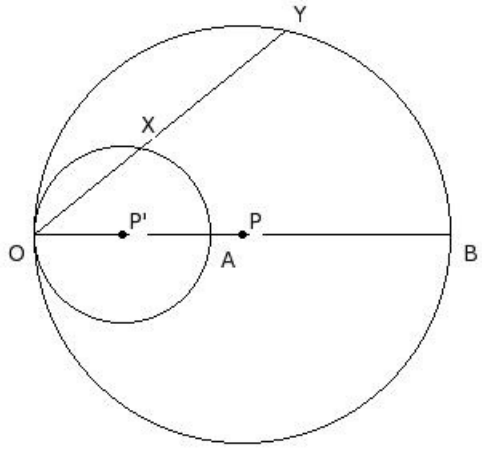
(i) 9:10 (ii) 10:8 (iii) 8:9 (iv) 8:8 (v) 9:6

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



(i) 19.0 cm (ii) 22.0 cm (iii) 20.0 cm (iv) 23.0 cm (v) 21.0 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 5.5 cm.
Find the radius of the outer circle.



(i) 14.22 cm (ii) 10.22 cm (iii) 13.22 cm (iv) 11.22 cm (v) 12.22 cm

Assignment Key

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