EduSahara™ Learning Center Assignment

Grade : Class X, SSC
Chapter : Similar Triangles
Name : Similarity of Triangles

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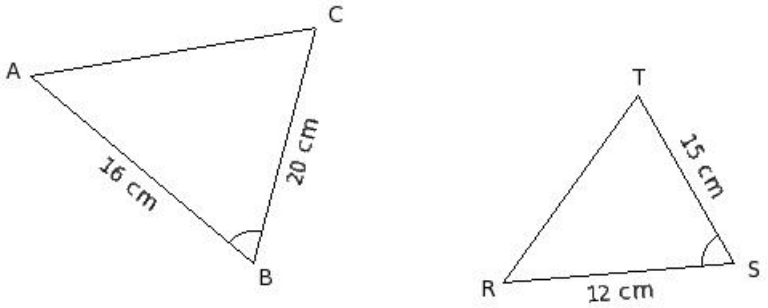
1. Identify the property by which the two given triangles are similar



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

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

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

---

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

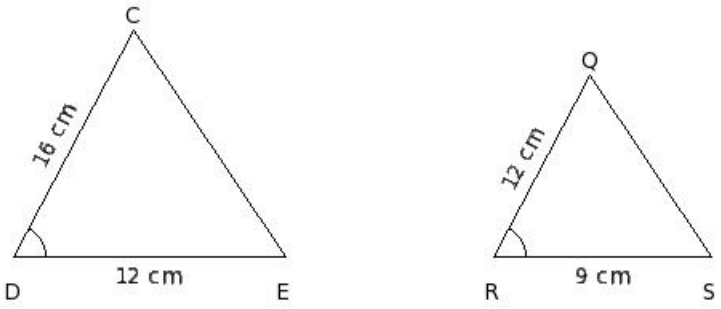
(i) SSS Similarity
(ii) not similar
(iii) SAS Similarity
(iv) AAA Similarity

4.

In the given figure, △CDE and △QRS are such that

$\angle D = \angle R$ and $\frac{CD}{QR} = \frac{DE}{RS}$.

Identify the property by which the two triangles are similar



(i) SSS Similarity

(ii) AAA Similarity

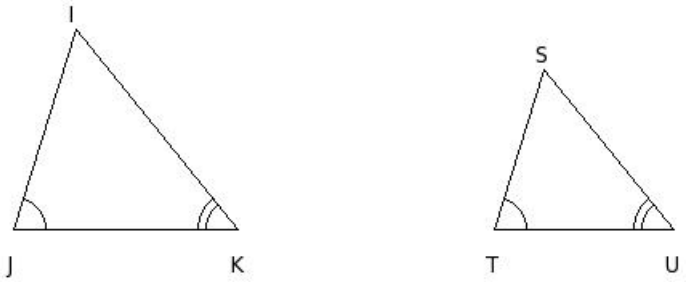
(iii) not similar

(iv) SAS Similarity

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

5. $\angle J = \angle T$ and $\angle K = \angle U$.

Identify the property by which the two triangles are similar



(i) SAS Similarity

(ii) AAA Similarity

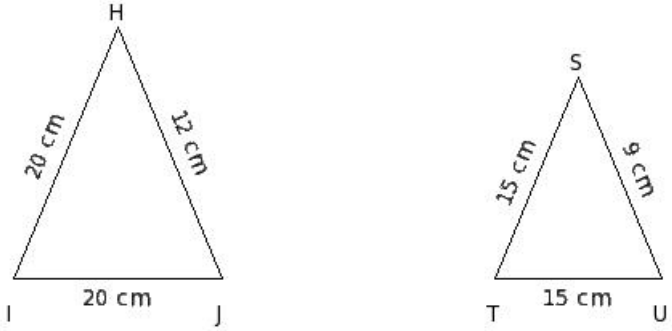
(iii) not similar

(iv) SSS Similarity

In the given figure, △HIJ and △STU are such that

6. $\frac{HI}{ST} = \frac{IJ}{TU} = \frac{JH}{US}$.

Identify the property by which the two triangles are similar



(i) SSS Similarity

(ii) AAA Similarity

(iii) not similar

(iv) SAS Similarity

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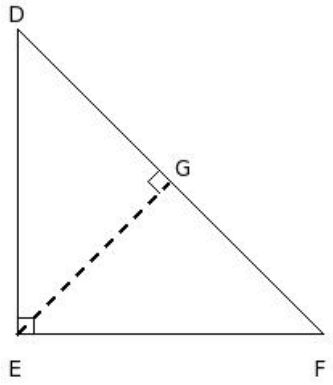
7. In the given figure, △DEF is isosceles right-angled at E and EG ⊥ FD. ∠F =



(i) ∠E (ii) ∠H (iii) ∠D (iv) ∠I (v) ∠G

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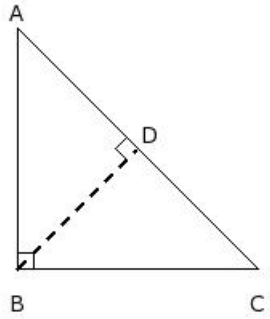
8. In the given figure, △ABC is isosceles right-angled at B and BD ⊥ CA. ∠ABC =

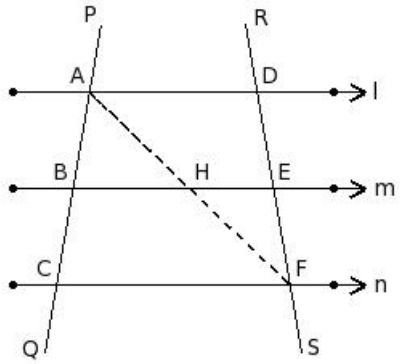


(i) ∠DBC (ii) ∠BCD (iii) ∠BDA (iv) ∠ABD (v) ∠DAB

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

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

△FEH ∼

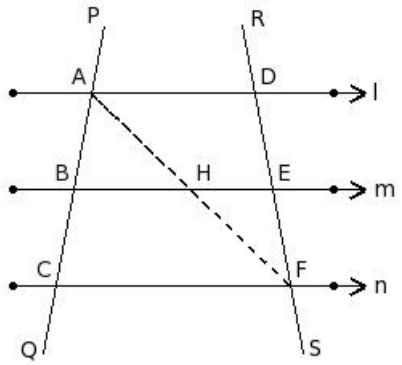


(i) △DAE (ii) △DCF (iii) △ABH (iv) △ACF (v) △FDA

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

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

∠HAB =

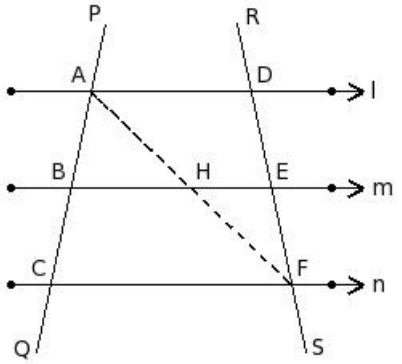


(i) ∠FEH (ii) ∠HFE (iii) ∠FAC (iv) ∠FDA (v) ∠AFD

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

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

∠FEH =

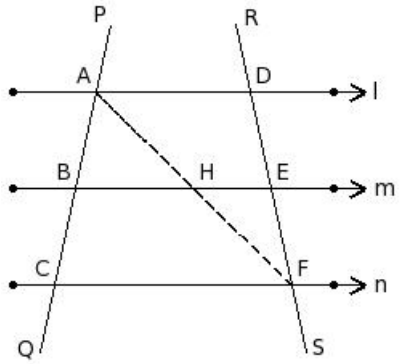


(i) ∠FDA (ii) ∠EHF (iii) ∠DAF (iv) ∠ACF (v) ∠ABH

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

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

∠BHA =



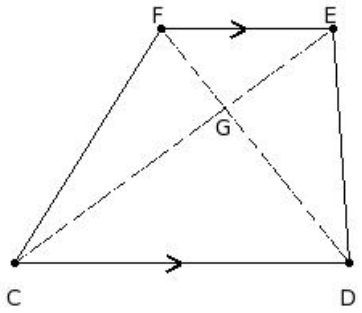
(i) ∠DAF (ii) ∠CFA (iii) ∠HFE (iv) ∠AFD (v) ∠EHF

In the given figure, CDEF is a trapezium in which

CD ‖ EF and the diagonals DF and CE intersect at G .

13. If GC = $(x + 39)$ cm, DG = $(x + 46)$ cm, GE = $(x + 11)$ cm and

FG = $(x + 16)$ cm, find the value of x



(i) (61 , 59) (ii) (61 , 61) (iii) (60 , 60)

(iv) (59 , 58) (v) (59 , 59)

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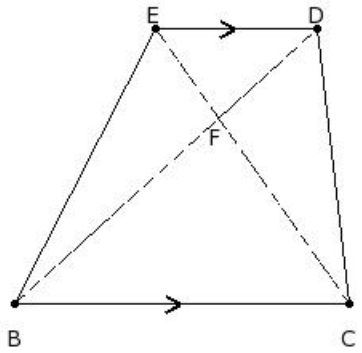
14. In the given figure, BCDE is a trapezium in which BC ‖ DE and the diagonals CE and BD intersect at F . △FDE ~



(i) △CDE (ii) △FBC (iii) △EBC (iv) △FCD (v) △FEB

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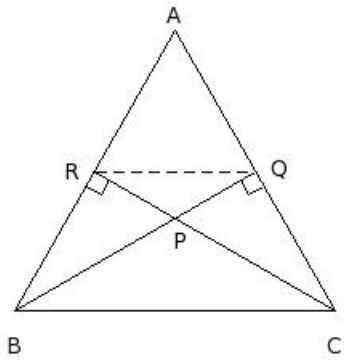
15. In the given figure, the altitudes QB and CR of △ABC meet at P. △RBC ~



(i) △QCB (ii) △QCP (iii) △PBC (iv) △PRQ (v) △RBP

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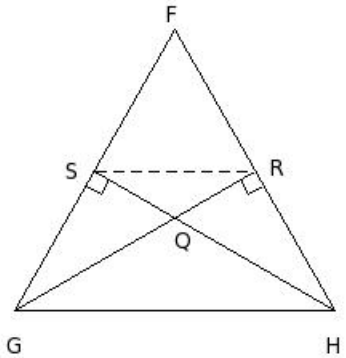
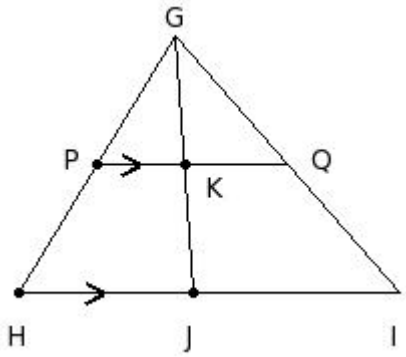
16. In the given figure, the altitudes RG and HS of △FGH meet at Q. ∠RQH =



(i) ∠QHR (ii) ∠GQS (iii) ∠SGQ (iv) ∠HRQ (v) ∠QSG

17. In the given figure, PQ ‖ HI , and median GJ bisects PQ. △GPK ∼



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

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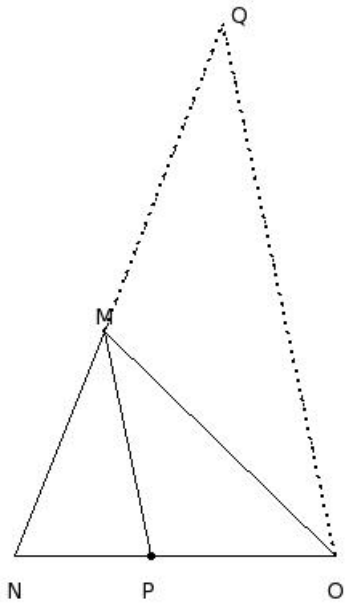
18. In the given figure, △MNO is a triangle in which MP is the internal bisector of ∠M and OQ ‖ PM meeting NM produced at Q . ∠MOQ =



(i) ∠MPO (ii) ∠NPM (iii) ∠OQM (iv) ∠POM (v) ∠QMO

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19. Which of the following are true ?

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

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

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20. Which of the following are true ?

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

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

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

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

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

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

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

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

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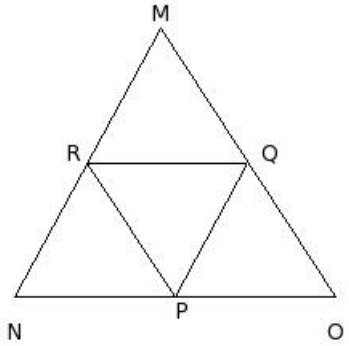
24. In the given figure, the area of the $\triangle$MNO is x sq.cm. P,Q,R are the mid-points of the sides NO , OM and MN respectively. The area of the $\triangle$PQR is



(i) $\frac{3}{4}$ of area of $\triangle$MNO

(ii) $\frac{1}{2}$ of area of $\triangle$MNO

(iii) $\frac{1}{4}$ of area of $\triangle$MNO

(iv) $\frac{1}{3}$ of area of $\triangle$MNO

(v) $\frac{2}{3}$ of area of $\triangle$MNO

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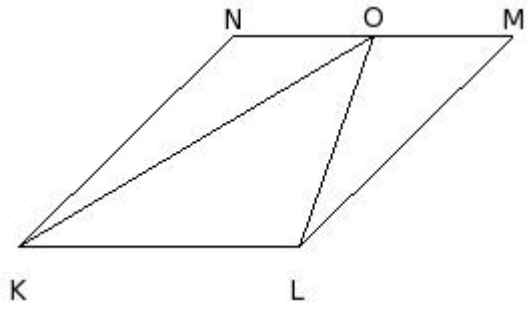
25. In the given figure, the parallelogram KLMN and the triangle $\triangle$OKL are on the same bases and between the same parallels.

The area of the $\triangle$OKL 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) $\frac{5}{4}$ the area of the triangle

(v) thrice the area of the triangle

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26. If the ratio of the bases of two triangles is M : N and the ratio of the corresponding heights is O : P , the ratio of their areas in the same order is

(i) MO : NP (ii) MN : OP (iii) NO : MP (iv) OP : MN (v) MP : NO

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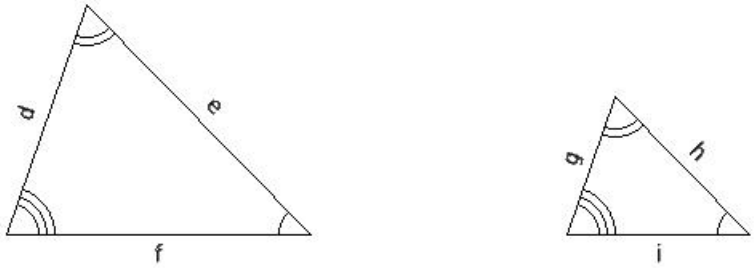
27. In the given two similar triangles, if d = 15 cm, e = 20 cm, f = 19 cm, g = 9 cm, find h



(i) 12.00 cm (ii) 14.00 cm (iii) 10.00 cm (iv) 13.00 cm (v) 11.00 cm

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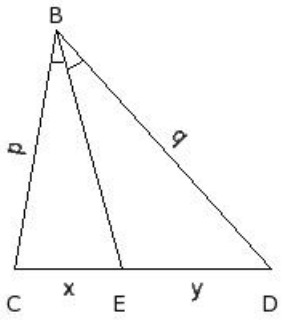
28. In the given figure, given ∠EBC = ∠DBE, x : y = 6.86 cm : 9.14 cm and p = 15 cm, find q =



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

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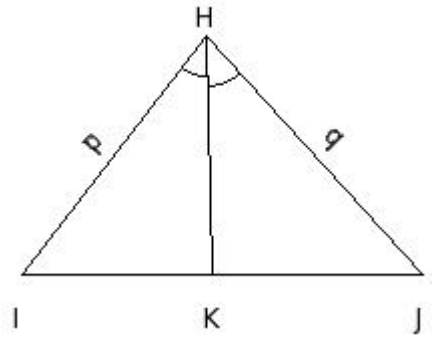
29. In the given figure, given ∠KHI = ∠JHK, p = 9.68 cm, q = 10.32 cm and IJ = 20 cm, find IK =



(i) 9.68 cm (ii) 10.68 cm (iii) 8.68 cm (iv) 7.68 cm (v) 11.68 cm

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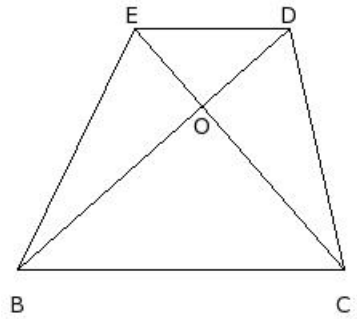
30. In the given figure, BCDE is a trapezium where OB = 15 cm , OC = 15 cm and OD = 5 cm . Find OE =



(i) 3 cm (ii) 7 cm (iii) 6 cm (iv) 5 cm (v) 4 cm

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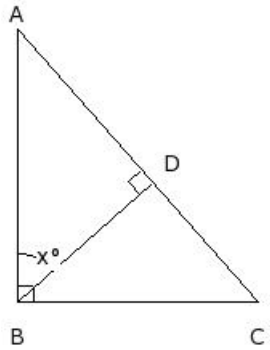
31. In the given figure, ∠DAB = 41.18°, find the value of x =



(i) 49.82° (ii) 47.82° (iii) 46.82° (iv) 48.82° (v) 50.82°

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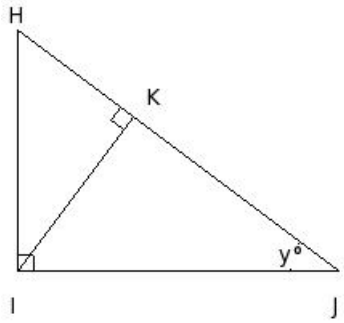
32. In the given figure, ∠KIJ = 53.13°, find the value of y =



(i) 35.87° (ii) 34.87° (iii) 36.87° (iv) 37.87° (v) 38.87°

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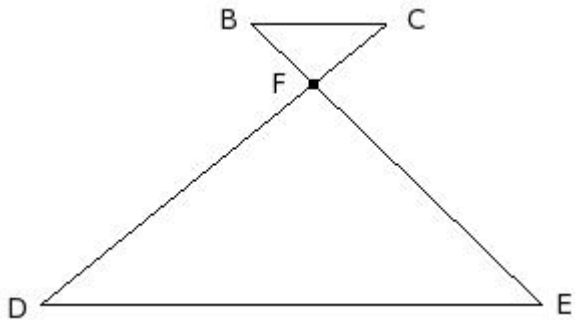
33. In the given figure, if BC ∥ DE then



(i) △FCB ~ △FED
(ii) △BCF ~ △EDF
(iii) △BCF ~ △FDE
(iv) △FBC ~ △FDE
(v) △BCF ~ △FED

---

34. In the given figure, △IJK is right-angled at J. Also, JL ⊥ IK. Which of the following are true?

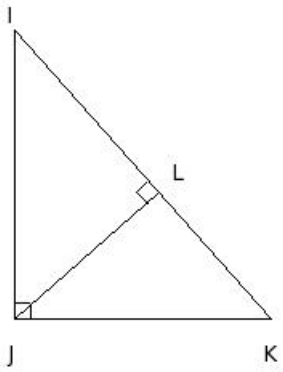
a) $IJ^2 = IK \cdot IL$

b) $IJ^2 = KI \cdot KL$

c) $JK^2 = KI \cdot KL$

d) $JL^2 = IL \cdot LK$

e) $JK^2 = IK \cdot IL$



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

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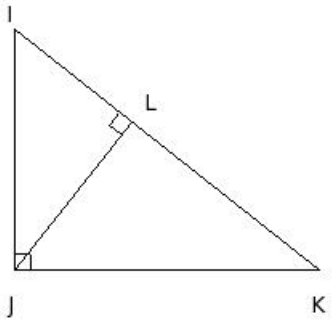
35. In the given figure, △IJK is right-angled at J. Also, JL ⊥ IK. If JK = 19 cm, JL = 11.77 cm, then find IJ.



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

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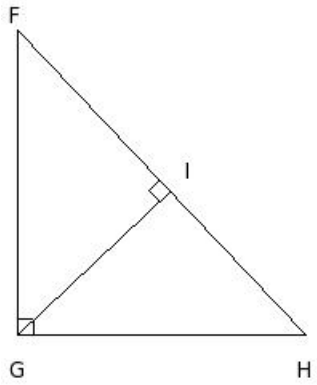
36. In the given figure, △FGH is right-angled at G. Also, GI ⊥ FH. If FI = 13.9 cm, GI = 13.08 cm, then find IH.



(i) 14.30 cm (ii) 13.30 cm (iii) 11.30 cm (iv) 10.30 cm (v) 12.30 cm

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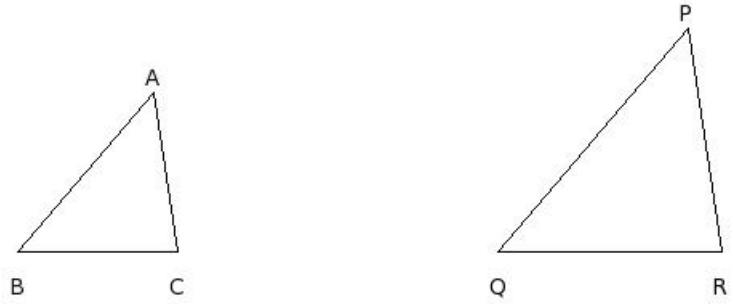
37. In the given figure, △ABC ~ △PQR and AB = 13 cm, PQ = 18.2 cm.
If the area of the △PQR = 96.82 sq.cm , find the area of the △ABC



(i) 51.40 sq.cm (ii) 49.40 sq.cm (iii) 50.40 sq.cm

(iv) 47.40 sq.cm (v) 48.40 sq.cm

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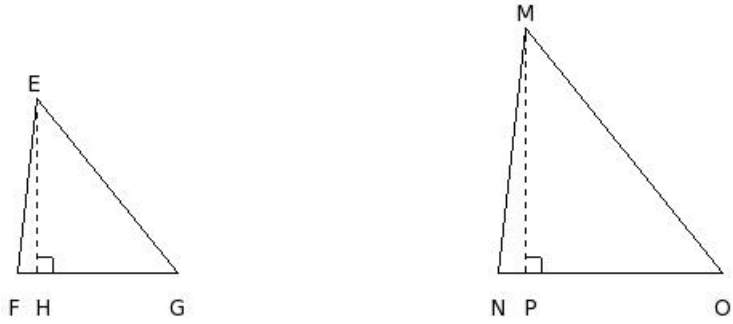
38. In the given figure, △EFG ~ △MNO and FG = 10 cm , NO = 14 cm and
EH = 10.93 cm , find the area of the △MNO



(i) 105.10 sq.cm (ii) 107.10 sq.cm (iii) 108.10 sq.cm

(iv) 106.10 sq.cm (v) 109.10 sq.cm

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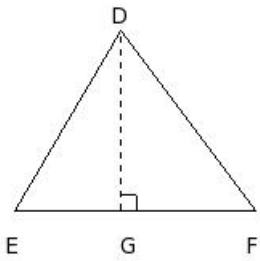
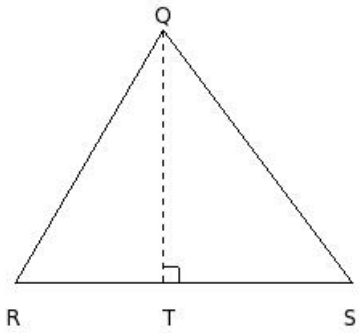
39. In the given figure, △DEF & △QRS are similar triangles. If the ratio of the heights DG : QT = 11 : 16, then the ratio of their areas is





(i) 121 sq.cm : 258 sq.cm

(ii) 121 sq.cm : 256 sq.cm

(iii) 120 sq.cm : 256 sq.cm

(iv) 121 sq.cm : 253 sq.cm

(v) 122 sq.cm : 256 sq.cm

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40. 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?

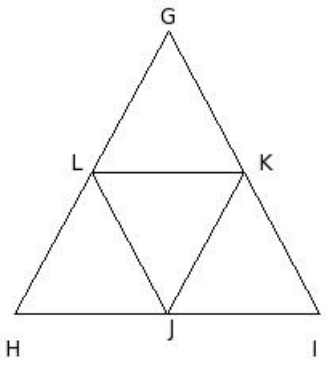
a) Area of trapezium HIKL is $\frac{1}{4}$ the area of △GHI

b) Area of △GHI = $\frac{1}{3}$ area of △JKL

c) Area of trapezium HIKL is thrice the area of △GLK

d) All four small triangles have equal areas

e) Area of △GHI = 4 times area of △JKL



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

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41. 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?

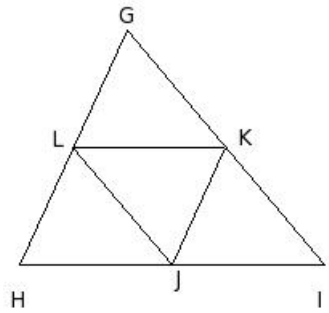
a) △LHJ ~ △GHI

b) △KJI ~ △GHI

c) △GLK ~ △GHI

d) △JKL ~ △GHI

e) △JLK ~ △GHI



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

---

42. The perimeters of two similar triangles are 25 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) 5.84 cm (ii) 4.84 cm (iii) 8.84 cm (iv) 7.84 cm (v) 6.84 cm

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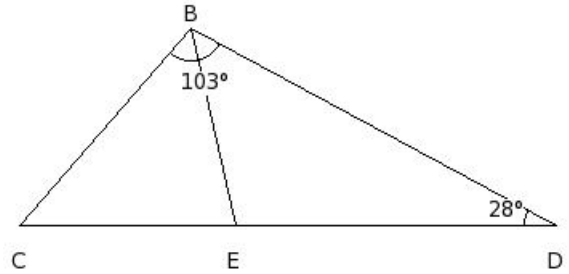
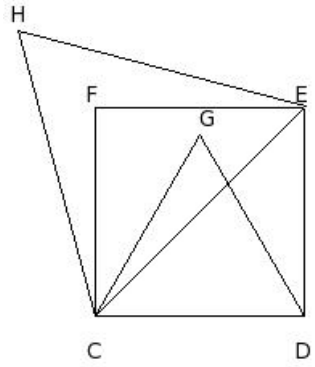
43. In the given figure, E is a point on side CD of $\triangle BCD$ such that $\angle DBC = \angle BED = 103°$, $\angle EDB = 28°$. Find $\angle DBE$



(i) 51° (ii) 49° (iii) 48° (iv) 47° (v) 50°

---

44. CDEF is a square and $\triangle CDG$ is an equilateral triangle. Also, $\triangle CEH$ is an equilateral triangle. If area of $\triangle CDG$ is 'a' sq.units, then the area of $\triangle CEH$ is



(i) $\frac{1}{2}$ a sq.units

(ii) $\sqrt{3}$ a sq.units

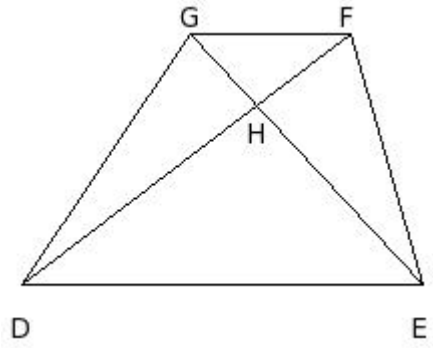
(iii) 2a sq.units

(iv) $\frac{1}{2}\sqrt{3}$ a sq.units

(v) a^2 sq.units

---

45. DEFG is a cyclic trapezium. Diagonals EG and DF intersect at H. If GD = 15 cm, find EF

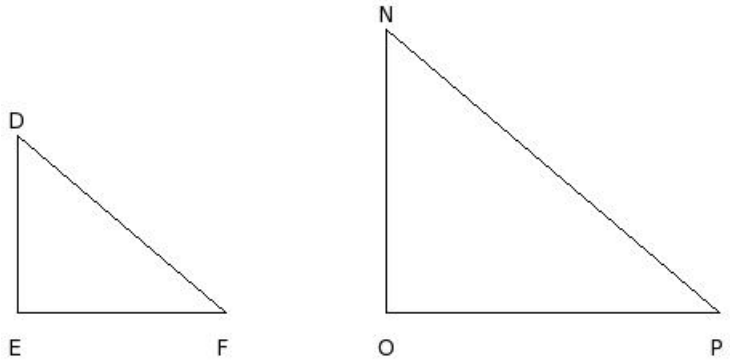


(i) 15 cm (ii) 16 cm (iii) 13 cm (iv) 14 cm (v) 17 cm

A vertical stick 11 mt long casts a shadow of 13 mt long on the ground.

46. At the same time, a tower casts the shadow 104 mt long on the ground.

Find the height of the tower.



(i) 87 mt (ii) 89 mt (iii) 88 mt (iv) 90 mt (v) 86 mt

---

47. In the given figure, $\triangle ACB$ is right-angled at C, $CD \perp AB$.

AB = c, CB = a, AC = b and CD = p. Which of the following are true ?

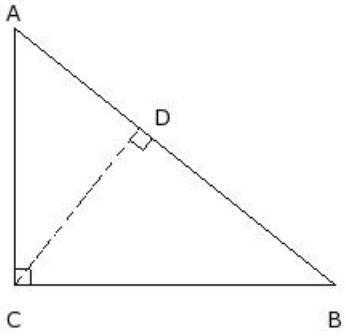
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c^2} + \frac{1}{p^2}$

b) $a^2 + b^2 = c^2$

c) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2}$

d) $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} = \frac{1}{p^2}$

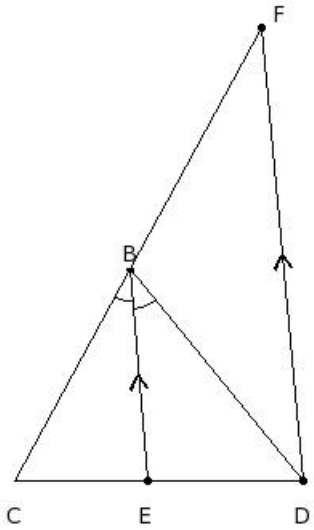
e) $ab = pc$



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

---

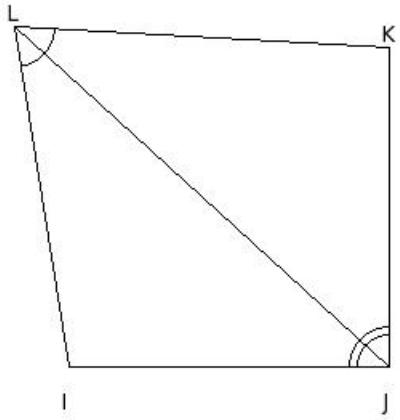
48. In the given figure, ∠EBC = ∠DBE and BE ‖ FD and BC = 15 cm, CE = 8 cm and ED = 10 cm. Find BF



(i) 19.75 cm (ii) 20.75 cm (iii) 17.75 cm (iv) 18.75 cm (v) 16.75 cm

---

49. In the given figure, JL is the angular bisector of ∠J & ∠L
IJ = 20 cm , JK = 20 cm and KL = 23 cm . Find LI



(i) 25.00 cm (ii) 23.00 cm (iii) 24.00 cm (iv) 22.00 cm (v) 21.00 cm

---

50. The ratio of the bases of two triangles ABC and DEF is $6 : 10$.
If the triangles are equal in area, then the ratio of their heights is

(i) $6 : 12$ (ii) $7 : 10$ (iii) $6 : 7$ (iv) $5 : 10$ (v) $10 : 6$

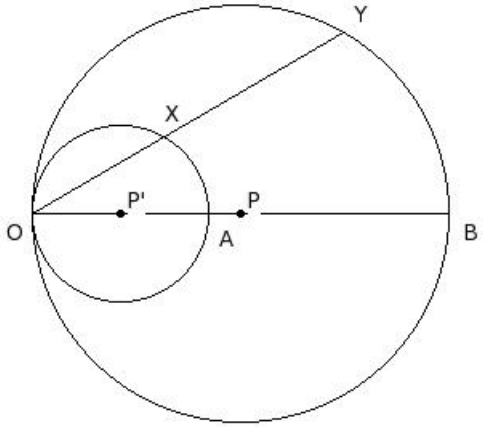
---

51. 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 5.5 cm .

Find the radius of the outer circle.



(i) 14.65 cm (ii) 12.65 cm (iii) 11.65 cm (iv) 13.65 cm (v) 10.65 cm

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Assignment Key

1) (ii)
2) (i)
3) (i)
4) (iv)
5) (ii)
6) (i)
7) (iii)
8) (iii)
9) (v)
10) (iii)
11) (i)
12) (ii)
13) (v)
14) (ii)
15) (i)
16) (ii)
17) (v)
18) (iii)
19) (iv)
20) (iv)
21) (ii)
22) (iii)
23) (iv)
24) (iii)
25) (i)
26) (i)
27) (i)
28) (i)
29) (i)
30) (iv)
31) (iv)
32) (iii)
33) (ii)
34) (i)
35) (ii)
36) (v)
37) (ii)
38) (ii)
39) (ii)
40) (v)
41) (v)
42) (v)
43) (ii)
44) (iii)
45) (i)
46) (iii)
47) (i)
48) (iv)
49) (ii)
50) (v)
51) (ii)