EduSahara™ Assignment

Name : Triangle Problems

Chapter : Triangles

Grade : ICSE Grade VIII

1. Two angles of a triangle measure 61° and 69° respectively. Find the measure of the third angle of the triangle

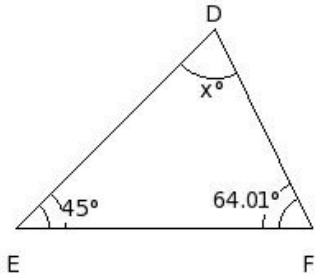
   (i) 51° (ii) 50° (iii) 48° (iv) 49° (v) 52°

2. The angles of a triangle ABC are in the ratio 4 : 13 : 19. Find the measure of each angle of the triangle

   (i) A=20°,B=65°,C=95° (ii) A=20°,B=63°,C=97° (iii) A=22°,B=65°,C=93° (iv) A=18°,B=67°,C=95°

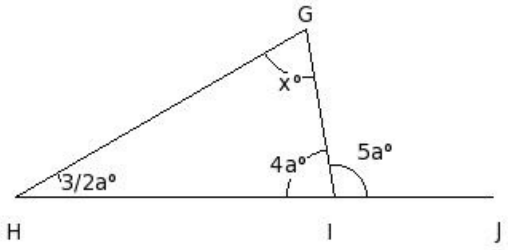
   (v) A=18°,B=65°,C=97°

3. Find the unknown angle from the following figure



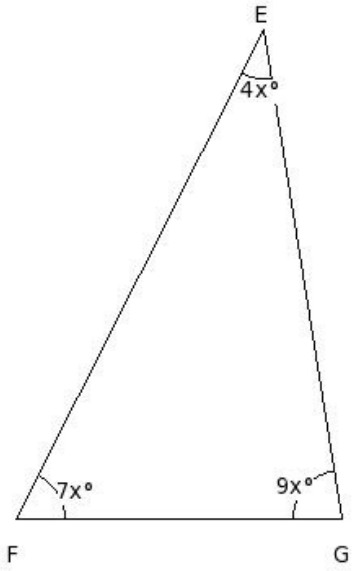
   (i) x=68.99° (ii) x=70.99° (iii) x=69.99° (iv) x=71.99° (v) x=72.99°

4. In the given figure, △GHI in which side HI has been produced to J. If ∠IGH = x° , ∠GHI = (3/2a)° , ∠HIG = (4a)° and ∠GIJ = (5a)°, find the values of a and x.



   (i) a=19°,x=69° (ii) a=18°,x=68° (iii) a=22°,x=72° (iv) a=21°,x=71° (v) a=20°,x=70°

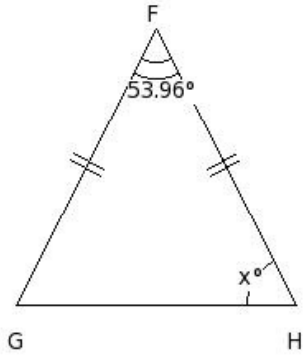
5. Find the angles of the triangle



(i) E=34°,F=65°,G=81° (ii) E=34°,F=63°,G=83° (iii) E=36°,F=63°,G=81° (iv) E=36°,F=61°,G=83°

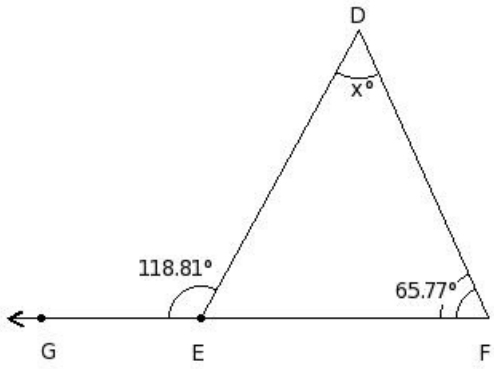
(v) E=38°,F=63°,G=79°

6. Calculate the value of x in the following figure



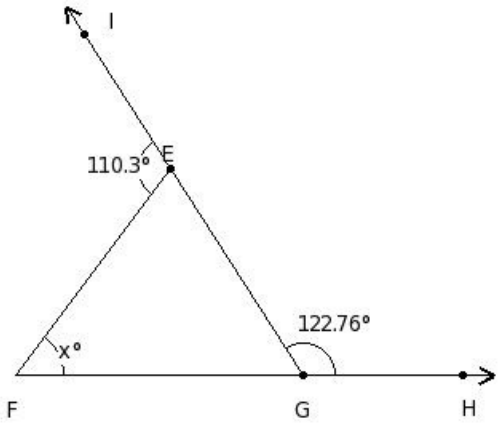
(i) x=65.02° (ii) x=64.02° (iii) x=61.02° (iv) x=62.02° (v) x=63.02°

7. Calculate the value of x in the following figure



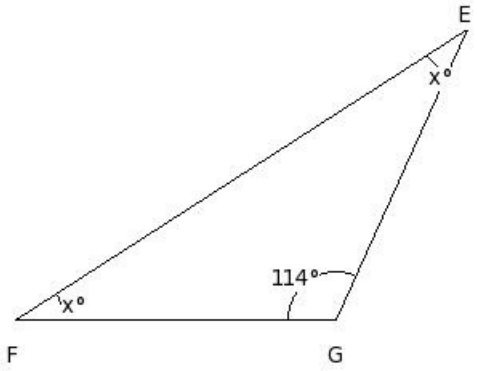
(i) x=53.04° (ii) x=54.04° (iii) x=51.04° (iv) x=52.04° (v) x=55.04°

8. Find the unknown marked angle in the following figure



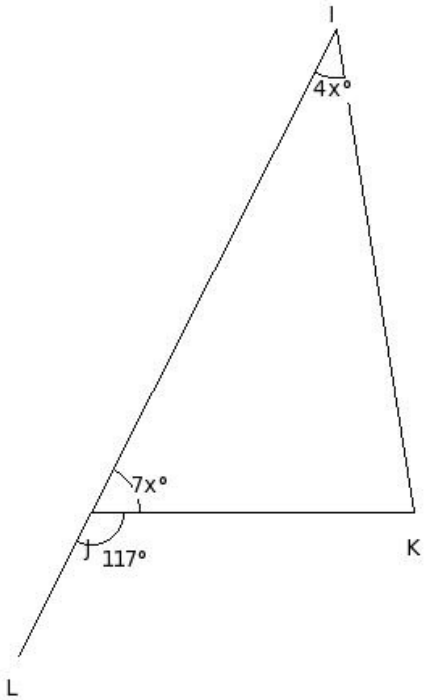
(i) x=51.06° (ii) x=53.06° (iii) x=52.06° (iv) x=55.06° (v) x=54.06°

9. Find the unknown angles in the following figure



(i) E=34°,F=34° (ii) E=35°,F=35° (iii) E=32°,F=32° (iv) E=31°,F=31° (v) E=33°,F=33°

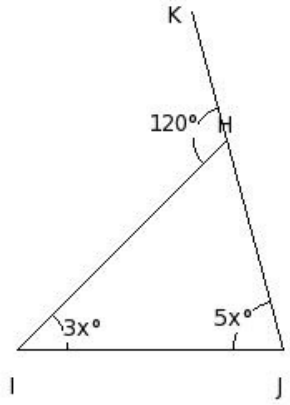
10. In the following figure, one side of a triangle has been produced. Find all the angles of the triangle



(i) I=38°,J=63°,K=79° (ii) I=34°,J=65°,K=81° (iii) I=36°,J=61°,K=83° (iv) I=36°,J=63°,K=81°

(v) I=34°,J=63°,K=83°

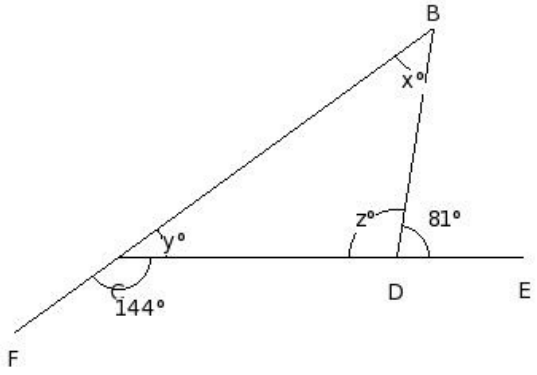
11. In the following figure, one side of a triangle has been produced. Find all the angles of the triangle.



(i) H=60°,I=45°,J=75° (ii) H=58°,I=45°,J=77° (iii) H=62°,I=45°,J=73° (iv) H=58°,I=47°,J=75°

(v) H=60°,I=43°,J=77°

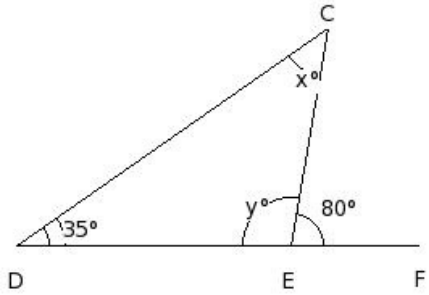
12. In the following figure, two sides of a triangle have been produced. Find all the angles of the triangle.



(i) x=45°,y=36°,z=99° (ii) x=45°,y=34°,z=101° (iii) x=43°,y=38°,z=99° (iv) x=43°,y=36°,z=101°

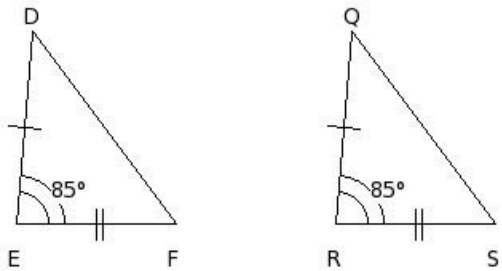
(v) x=47°,y=36°,z=97°

13. In the following figure, one side of a triangle has been produced. Find the values of x and y.



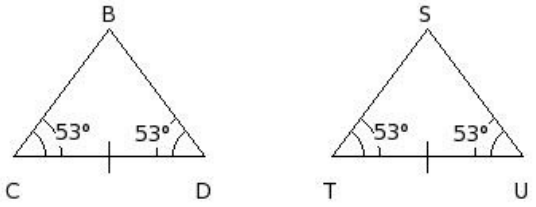
(i) x=47°,y=102° (ii) x=44°,y=99° (iii) x=45°,y=100° (iv) x=43°,y=98° (v) x=46°,y=101°

14. Identify the property by which the two given triangles are congruent



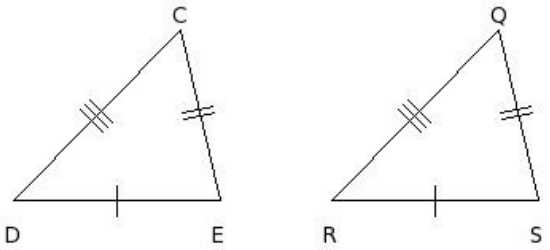
(i) RHS Congruency (ii) ASA Congruency (iii) SSS Congruency (iv) SAS Congruency

15. Identify the property by which the two given triangles are congruent



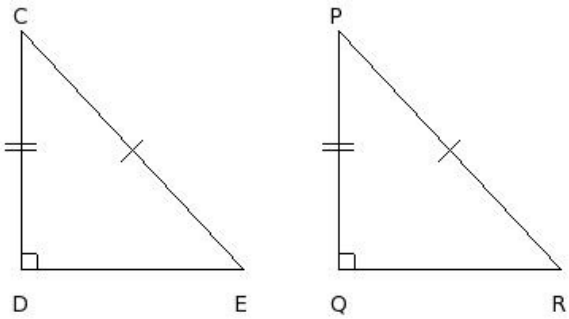
(i) SAS Congruency (ii) SSS Congruency (iii) RHS Congruency (iv) ASA Congruency

16. Identify the property by which the two given triangles are congruent



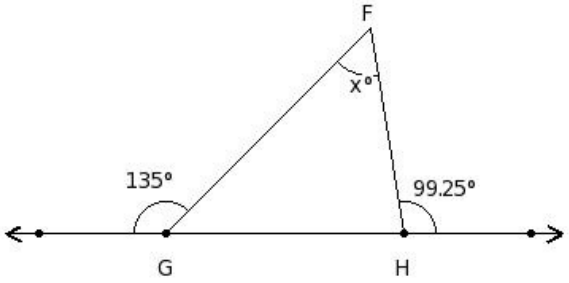
(i) SAS Congruency (ii) ASA Congruency (iii) RHS Congruency (iv) SSS Congruency

17. Identify the property by which the two given triangles are congruent



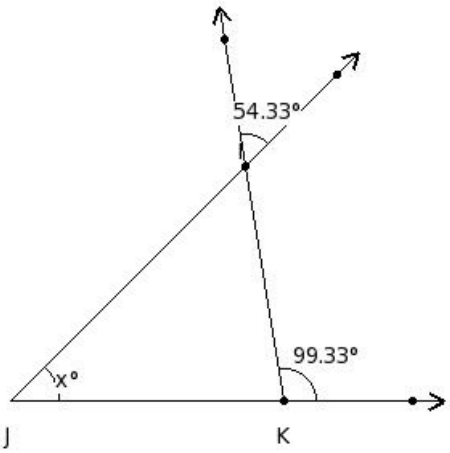
(i) ASA Congruency (ii) SAS Congruency (iii) SSS Congruency (iv) RHS Congruency

18. Calculate the value of the lettered angle in the following figure



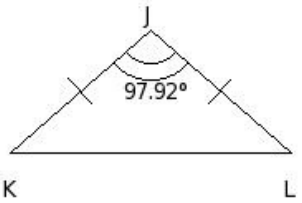
(i) x=56.25° (ii) x=55.25° (iii) x=53.25° (iv) x=52.25° (v) x=54.25°

19. Calculate the value of the lettered angle in the following figure



(i) x=43° (ii) x=44° (iii) x=46° (iv) x=47° (v) x=45°

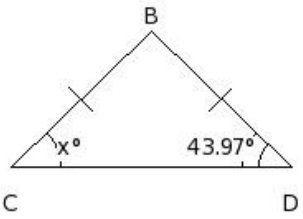
20. In the given triangle, ∠J = 97.92°. Find the measure of ∠K and ∠L



(i) ∠K = ∠L = 41.04° (ii) ∠K = ∠L = 40.04° (iii) ∠K = ∠L = 43.04° (iv) ∠K = ∠L = 42.04°

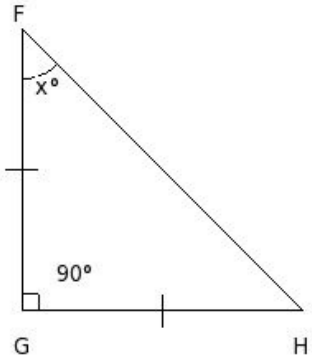
(v) ∠K = ∠L = 39.04°

21. Find the unknown angle in the following figure



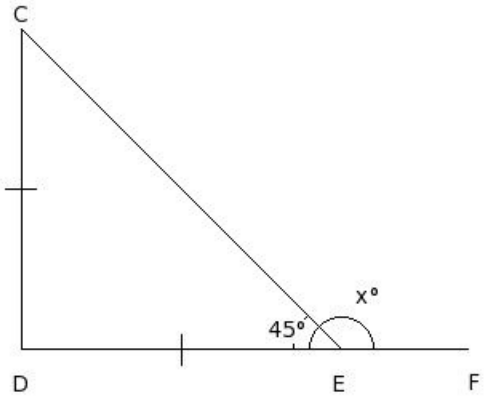
(i) x=45.97° (ii) x=43.97° (iii) x=44.97° (iv) x=42.97° (v) x=41.97°

22. Find the unknown angle in the following figure



(i) x=43° (ii) x=47° (iii) x=46° (iv) x=44° (v) x=45°

23. Find the unknown angle in the following figure



(i) x=133° (ii) x=136° (iii) x=137° (iv) x=135° (v) x=134°

24. In △BCD, if ∠B = 68° and ∠C = 53°, find the measure of ∠D

(i) D=57° (ii) D=61° (iii) D=60° (iv) D=59° (v) D=58°

25. In △BCD, if ∠B = 50° and ∠C = ∠D, find the measure of each of the equal angles of the triangle

(i) 65° (ii) 66° (iii) 63° (iv) 64° (v) 67°

26. One angle of a triangle measures 20° and the other two angles are in the ratio 1 : 3. Find these angles.

(i) B=39°,C=119° (ii) B=42°,C=122° (iii) B=41°,C=121° (iv) B=38°,C=118° (v) B=40°,C=120°

27. In a right-angled triangle, the two acute angles are in the ratio 7 : 2. Find these angles.

(i) A=71°,C=21° (ii) A=69°,C=19° (iii) A=68°,C=18° (iv) A=70°,C=20° (v) A=72°,C=22°

28. One of the two equal angles of an isosceles triangle measures 37°. Find the measure of each angle of the triangle.

(i) A=37°,B=35°,C=108° (ii) A=39°,B=37°,C=104° (iii) A=35°,B=37°,C=108°

(iv) A=37°,B=37°,C=106° (v) A=35°,B=39°,C=106°

29. Find the measure of each of the two equal angles of an isosceles right-angled triangle.

(i) 47° (ii) 44° (iii) 43° (iv) 46° (v) 45°

30. If all the three angles of a triangle are of the same measure, find the measure of each of the angles.

(i) 62° (ii) 58° (iii) 59° (iv) 61° (v) 60°

31. In a right-angled triangle if one of the acute angles is 48°, find the measure of the other acute angle.

(i) 43° (ii) 42° (iii) 41° (iv) 44° (v) 40°

32. The vertical angle of an isosceles triangle is twice the sum of its base angles. Find each angle of the triangle.

(i) A=120°,B=30°,C=30° (ii) A=118°,B=32°,C=30° (iii) A=122°,B=30°,C=28°

(iv) A=120°,B=28°,C=32° (v) A=118°,B=30°,C=32°

33. In an isosceles triangle, each base angle is four times its vertical angle. Find each angle of the triangle.

(i) A=20°,B=80°,C=80° (ii) A=20°,B=78°,C=82° (iii) A=18°,B=80°,C=82° (iv) A=18°,B=82°,C=80°

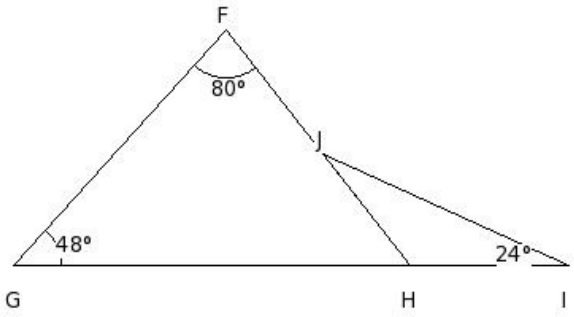
(v) A=22°,B=80°,C=78°

34. The ratio between the base angle and the vertical angle of an isosceles triangle is 5 : 8. Find each angle of the triangle

(i) A=78°,B=50°,C=52° (ii) A=82°,B=50°,C=48° (iii) A=80°,B=50°,C=50° (iv) A=78°,B=52°,C=50°

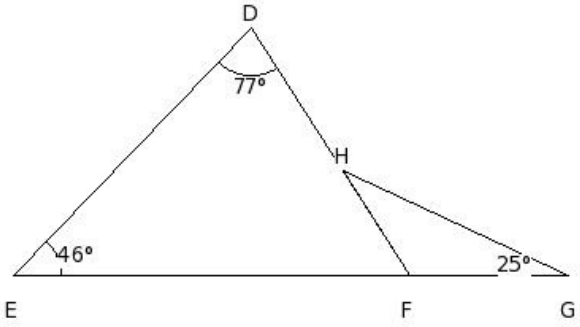
(v) A=80°,B=48°,C=52°

35. In the given figure, find ∠GHF



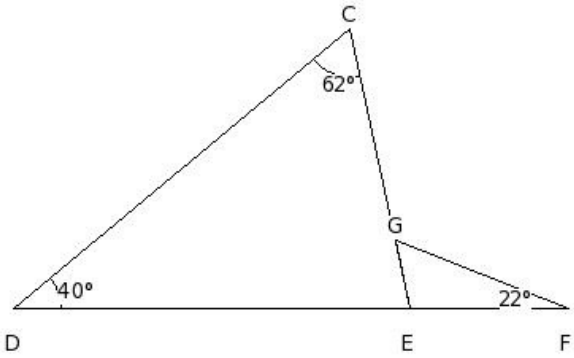
(i) 50° (ii) 52° (iii) 54° (iv) 51° (v) 53°

36. In the given figure, find ∠HFG



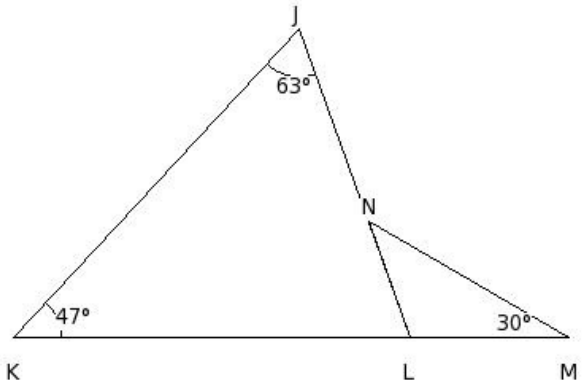
(i) 122° (ii) 124° (iii) 121° (iv) 125° (v) 123°

37. In the given figure, find ∠FGE



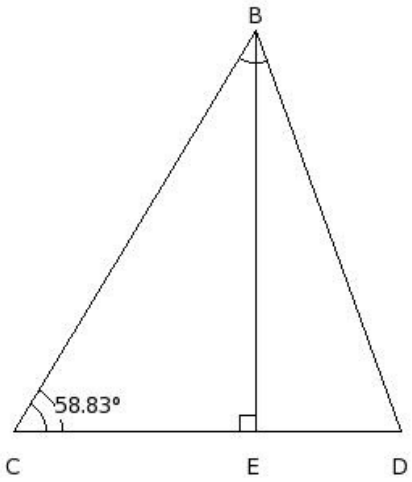
(i) 54° (ii) 55° (iii) 58° (iv) 57° (v) 56°

38. In the given figure, find ∠JNM



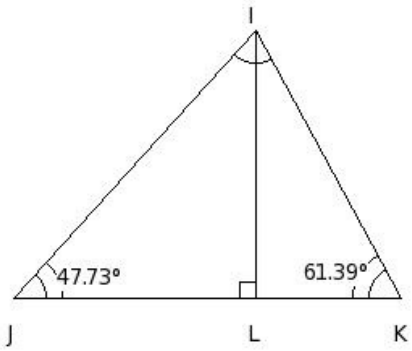
(i) 140° (ii) 142° (iii) 138° (iv) 139° (v) 141°

39. In the given figure , if EB ⊥ CD and ∠BCE = 58.83°, find ∠EBC



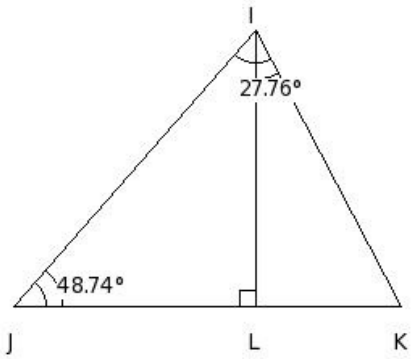
(i) 32.17° (ii) 31.17° (iii) 33.17° (iv) 29.17° (v) 30.17°

40. In the given figure , if LI ⊥ JK and ∠IJL = 47.73°, find ∠KIL



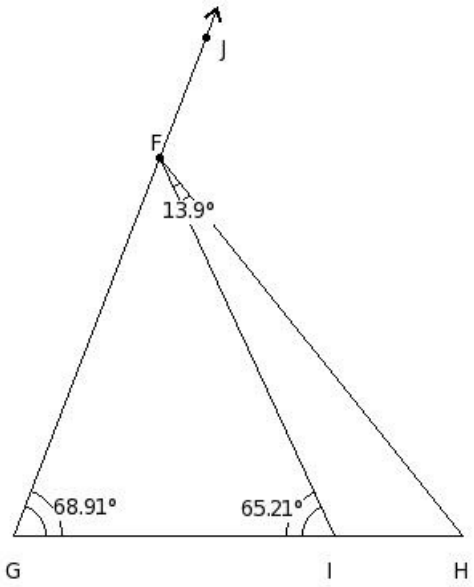
(i) 29.61° (ii) 28.61° (iii) 30.61° (iv) 26.61° (v) 27.61°

41. In the given figure , if LI ⊥ JK and ∠IJL = 48.74°, find ∠LKI



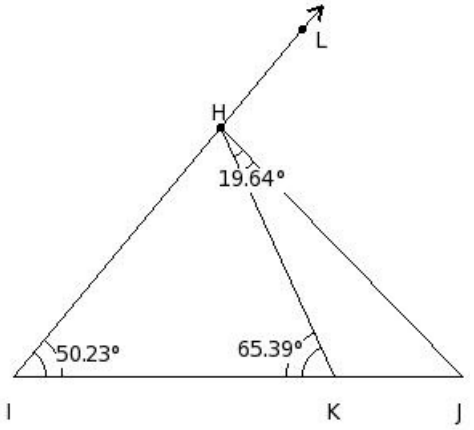
(i) 60.24° (ii) 63.24° (iii) 62.24° (iv) 61.24° (v) 64.24°

42. In below given figure, find ∠FIH



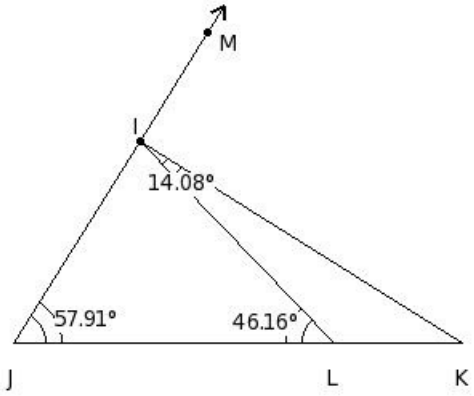
(i) 113.79° (ii) 116.79° (iii) 115.79° (iv) 112.79° (v) 114.79°

43. In below given figure, find ∠KHI



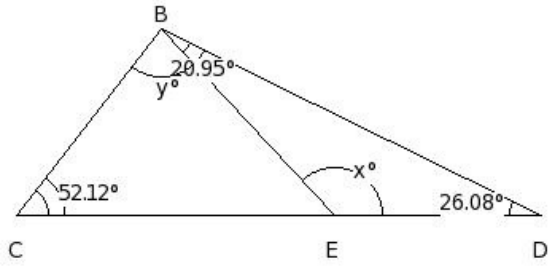
(i) 62.38° (ii) 64.38° (iii) 65.38° (iv) 66.38° (v) 63.38°

44. In below given figure, find ∠KIM



(i) 90.99° (ii) 87.99° (iii) 91.99° (iv) 89.99° (v) 88.99°

45. In the given figure, find the values of x and y.



(i) x=134.97°,y=82.85° (ii) x=133.97°,y=81.85° (iii) x=130.97°,y=78.85° (iv) x=132.97°,y=80.85°

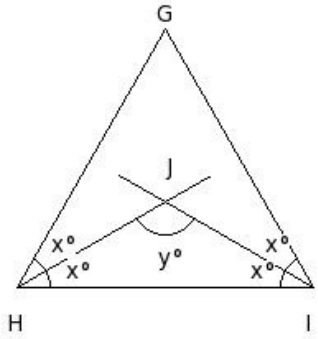
(v) x=131.97°,y=79.85°

46. Each of the two equal angles of an isosceles triangle is half the third angle. Find the angles of the triangle

(i) X=43°,Y=90°,Z=47° (ii) X=43°,Y=92°,Z=45° (iii) X=45°,Y=88°,Z=47° (iv) X=45°,Y=90°,Z=45°

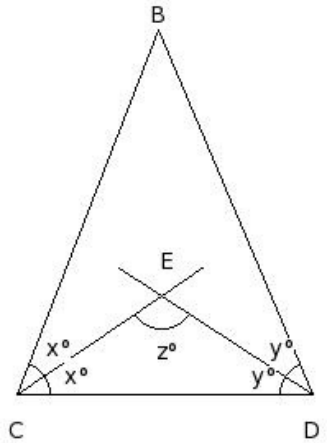
(v) X=47°,Y=90°,Z=43°

47. In the given figure, $\triangle GHI$ is a triangle in which $\angle G = \angle H = \angle I$.
This bisectors of $\angle H$ and $\angle I$ intersect at J. Find $\angle J =$



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

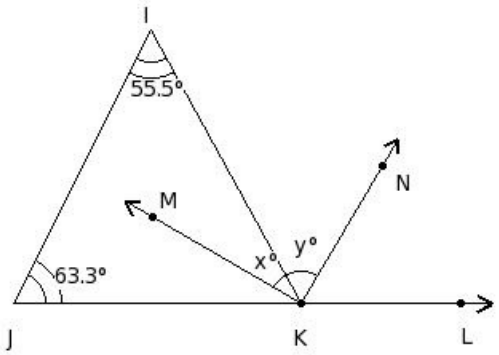
48. In the given figure, $\triangle BCD$ is a triangle in which $\angle C = 68.82°$ and $\angle D = 67.05°$.
If 'z' is the angle between the bisector of $\angle C$ and $\angle D$, then find z.



(i) 113.07° (ii) 112.07° (iii) 110.07° (iv) 114.07° (v) 111.07°

In the given figure, ∠I = 55.5° and ∠J = 63.3°.

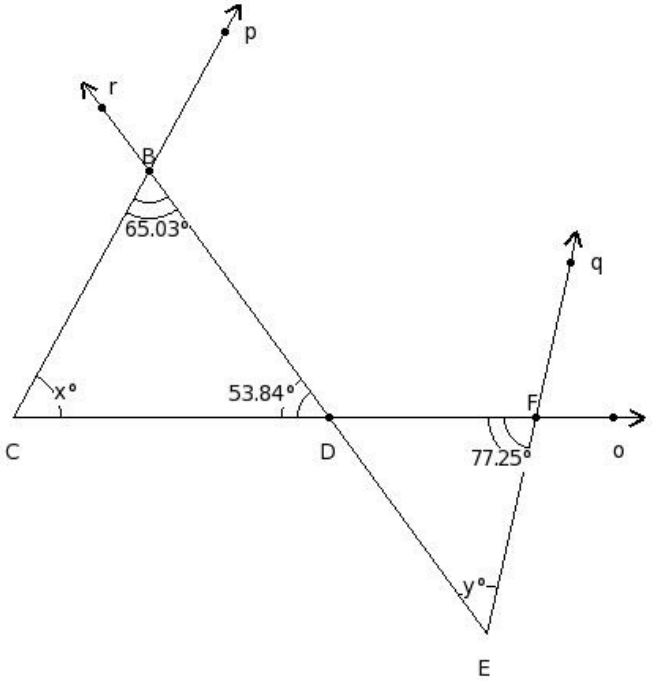
49. Side JK is produced to L, so that ∠JKI and ∠IKL form a linear pair.
If $\overrightarrow{KM}$ and $\overrightarrow{KN}$ are the bisectors of ∠JKI and ∠IKL, find x and y.



(i) x=31.6°,y=60.4° (ii) x=30.6°,y=59.4° (iii) x=32.6°,y=61.4° (iv) x=29.6°,y=58.4°

(v) x=28.6°,y=57.4°

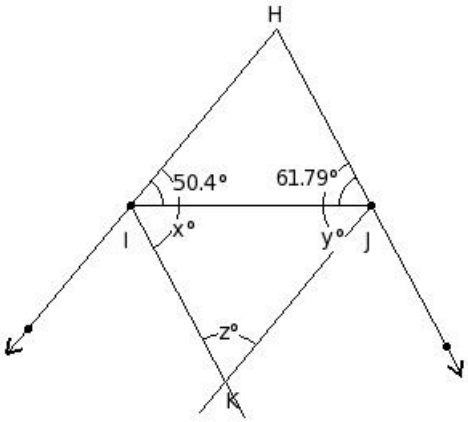
50. In the given figure, find the values of x and y



(i) x=62.13°,y=49.91° (ii) x=59.13°,y=46.91° (iii) x=61.13°,y=48.91° (iv) x=60.13°,y=47.91°

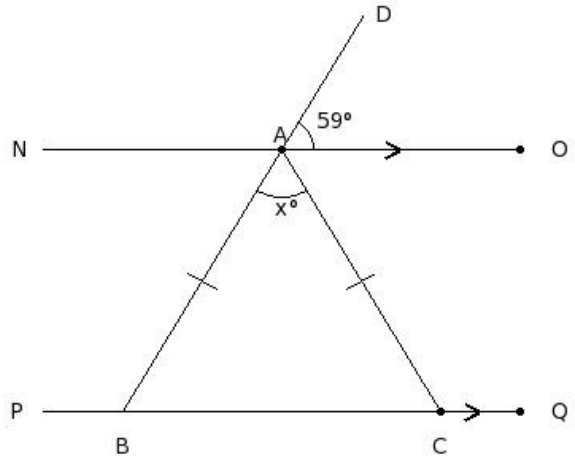
(v) x=63.13°,y=50.91°

51. In the given figure, △HIJ in which ∠I = 50.4° and ∠J = 61.79°. HK and IJ bisects each other. Find the value of z



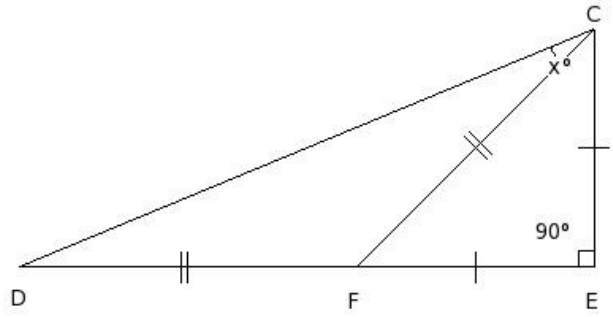
(i) z=67.81° (ii) z=69.81° (iii) z=68.81° (iv) z=65.81° (v) z=66.81°

52. In the given figure, NO ∥ PQ, ∠DAO = 59° and AB = CA. Find the measure of x.



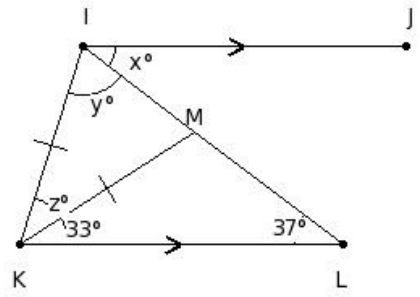
(i) x=60° (ii) x=63° (iii) x=64° (iv) x=62° (v) x=61°

53. In the given figure, find the value of x.



(i) x=22.5° (ii) x=21.5° (iii) x=24.5° (iv) x=20.5° (v) x=23.5°

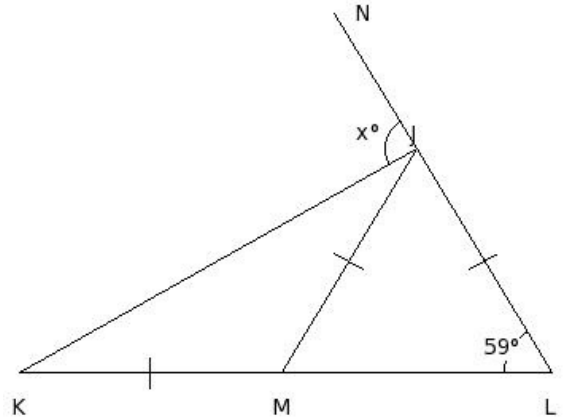
54. In the given figure, IJ ∥ KL and IK = KM. Find the values of x,y and z.



(i) x=35°,y=72°,z=40° (ii) x=39°,y=70°,z=38° (iii) x=37°,y=68°,z=42° (iv) x=37°,y=70°,z=40°

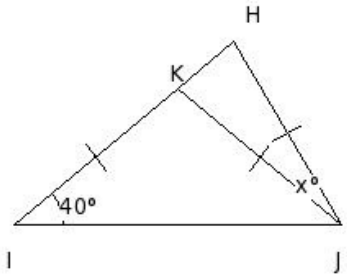
(v) x=35°,y=70°,z=42°

55. In the given figure, if LJ = JM = KM. Find the value of x.



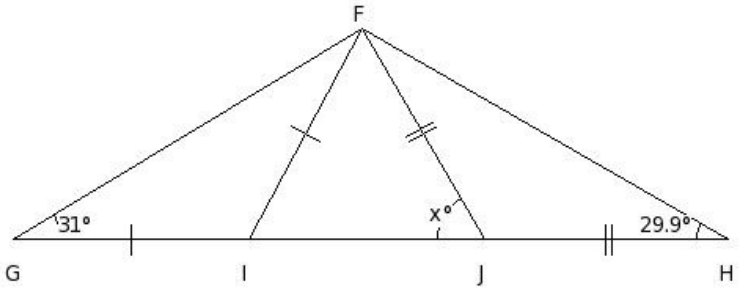
(i) x=89.5° (ii) x=86.5° (iii) x=87.5° (iv) x=90.5° (v) x=88.5°

56. In the given figure, if JH = JK = KI, find the value of x



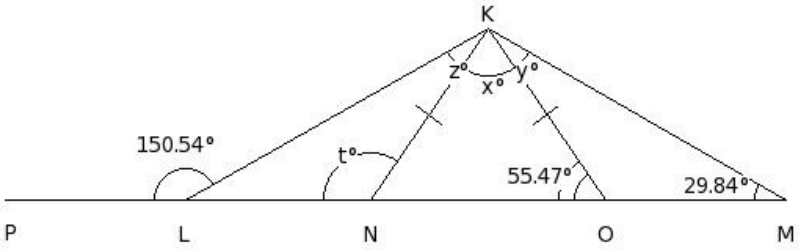
(i) x=20° (ii) x=18° (iii) x=21° (iv) x=19° (v) x=22°

57. In the given figure, if IF = GI and FJ = JH , find the value of x.



(i) x=58.8° (ii) x=57.8° (iii) x=59.8° (iv) x=60.8° (v) x=61.8°

58. In the given figure, if KN = OK, find the values of x , y , z and t

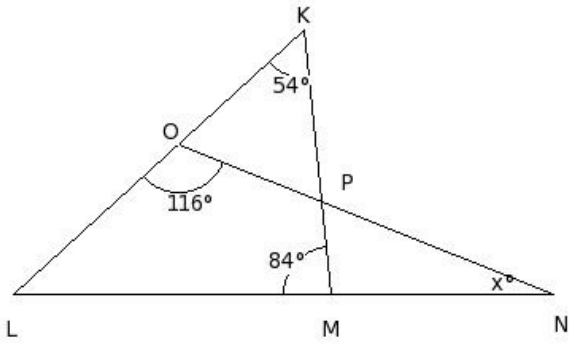


(i) x =69.06°, y =23.63°, z =24.01° , t =124.53° (ii) x =69.06°, y =25.63°, z =25.01° , t =123.53°

(iii) x =69.06°, y =25.63°, z =27.01° , t =125.53° (iv) x =69.06°, y =25.63°, z =26.01° , t =124.53°

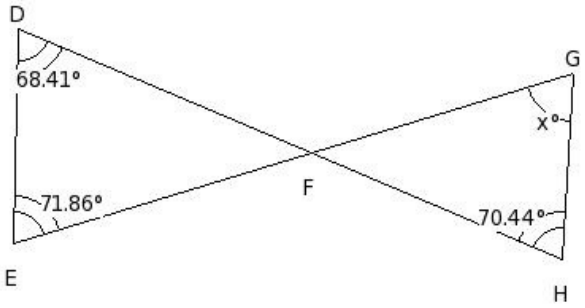
(v) x =69.06°, y =27.63°, z =28.01° , t =124.53°

59. In the given figure, calculate the value of x.



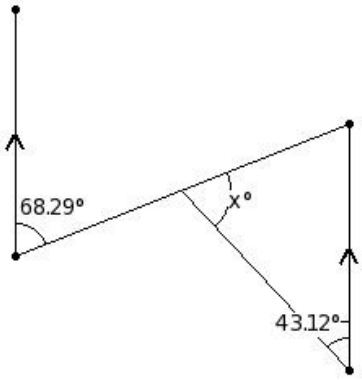
(i) x=20° (ii) x=22° (iii) x=23° (iv) x=21° (v) x=24°

60. In the given figure, calculate the value of x.



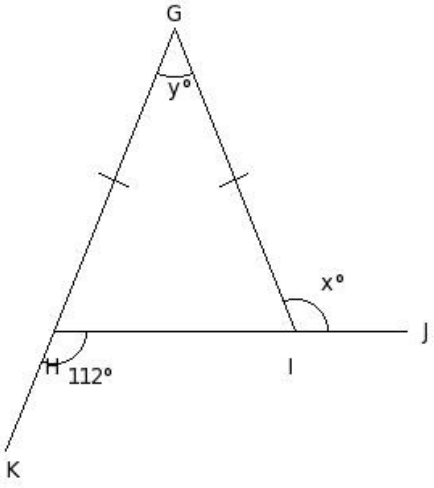
(i) x=67.83° (ii) x=70.83° (iii) x=71.83° (iv) x=69.83° (v) x=68.83°

61. In the given figure, calculate the value of x.



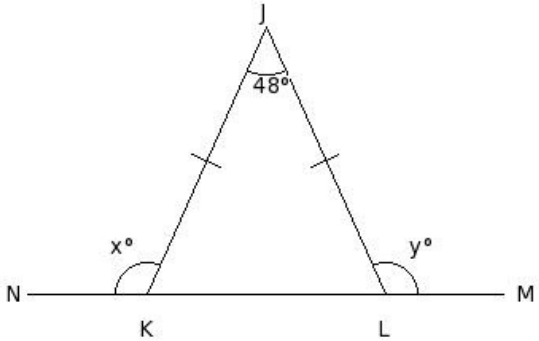
(i) x=67.59° (ii) x=70.59° (iii) x=66.59° (iv) x=69.59° (v) x=68.59°

62. Find the unknown marked angles in the following figure



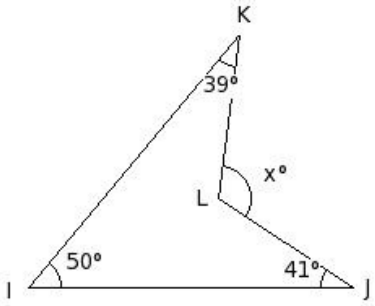
(i) x=113°,y=45° (ii) x=112°,y=44° (iii) x=114°,y=46° (iv) x=111°,y=43° (v) x=110°,y=42°

63. Find the unknown marked angles in the following figure



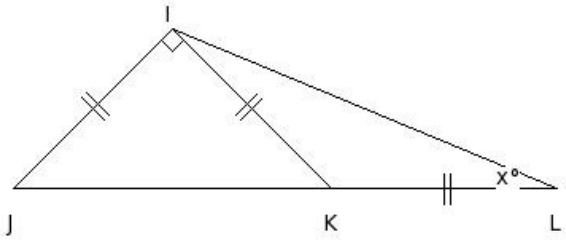
(i) x=114°,y=114° (ii) x=112°,y=112° (iii) x=115°,y=115° (iv) x=116°,y=116° (v) x=113°,y=113°

64. In the given figure, calculate the value of x.



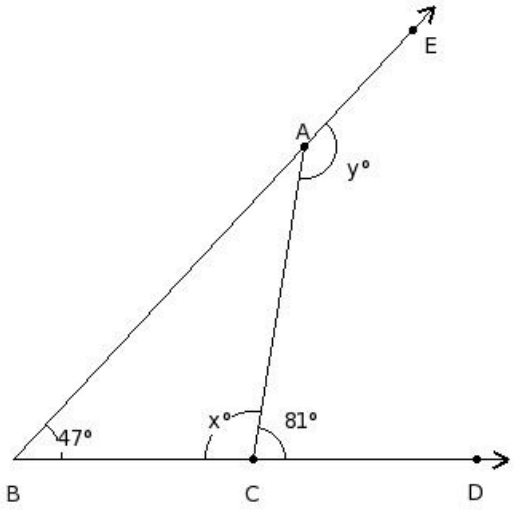
(i) x=132° (ii) x=128° (iii) x=130° (iv) x=129° (v) x=131°

65. In the given figure, calculate the value of x.



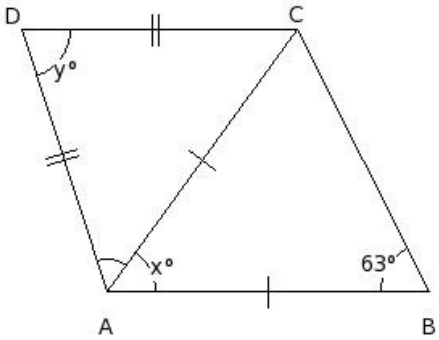
(i) x=21.5° (ii) x=24.5° (iii) x=20.5° (iv) x=23.5° (v) x=22.5°

66. Find the unknown marked angles in the following figure



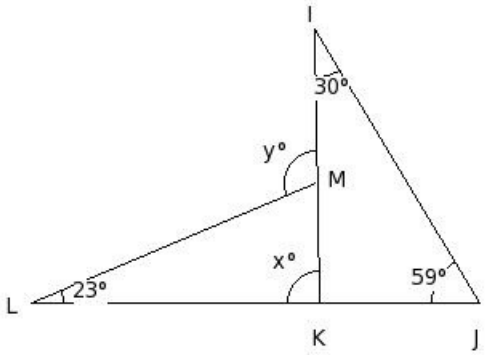
(i) x=97°,y=144° (ii) x=100°,y=147° (iii) x=98°,y=145° (iv) x=101°,y=148° (v) x=99°,y=146°

67. In the following figure AB ∥ DC, find the values of x and y.



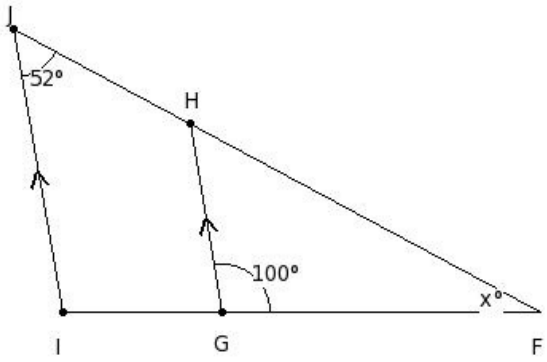
(i) x=54°,y=72° (ii) x=55°,y=73° (iii) x=52°,y=70° (iv) x=56°,y=74° (v) x=53°,y=71°

68. Find the unknown marked angles in the following figure



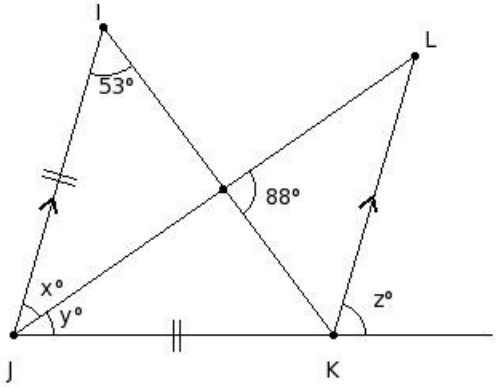
(i) x=90°,y=113° (ii) x=91°,y=114° (iii) x=89°,y=112° (iv) x=87°,y=110° (v) x=88°,y=111°

69. In the given figure, it is given that HG ∥ JI , ∠HJI = 52° and ∠HGF = 100°. Find the value of x.



(i) x=30° (ii) x=27° (iii) x=28° (iv) x=26° (v) x=29°

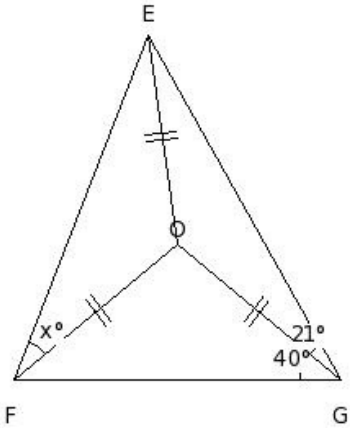
70. In the given figure, find the values of x ,y and z.



(i) x=37°,y=37°,z=74° (ii) x=39°,y=35°,z=74° (iii) x=41°,y=35°,z=72° (iv) x=39°,y=33°,z=76°

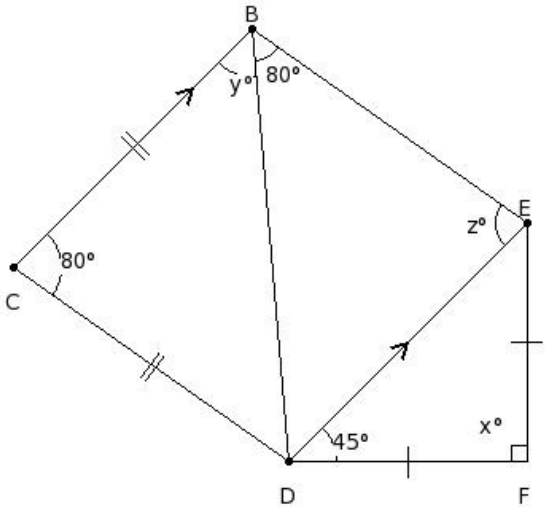
(v) x=37°,y=35°,z=76°

71. Find the value of x in the given figure.



(i) x=27° (ii) x=30° (iii) x=31° (iv) x=29° (v) x=28°

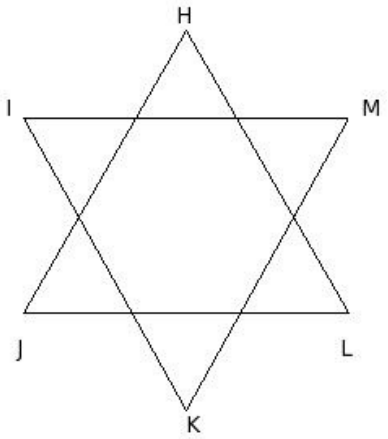
72. In the given figure, find the values of x ,y and z.



(i) x=88°,y=52°,z=80° (ii) x=92°,y=50°,z=78° (iii) x=90°,y=48°,z=82° (iv) x=88°,y=50°,z=82°

(v) x=90°,y=50°,z=80°

73. In the given two equilateral triangles, find ∠H + ∠J + ∠L + ∠I + ∠K + ∠M .



(i) 361° (ii) 359° (iii) 358° (iv) 362° (v) 360°

Assignment Key

1) (ii)	2) (i)	3) (ii)	4) (v)	5) (iii)	6) (v)
7) (i)	8) (ii)	9) (v)	10) (iv)	11) (i)	12) (i)
13) (iii)	14) (iv)	15) (iv)	16) (iv)	17) (iv)	18) (v)
19) (v)	20) (i)	21) (ii)	22) (v)	23) (iv)	24) (iv)
25) (i)	26) (v)	27) (iv)	28) (iv)	29) (v)	30) (v)
31) (ii)	32) (i)	33) (i)	34) (iii)	35) (ii)	36) (v)
37) (v)	38) (i)	39) (ii)	40) (ii)	41) (iii)	42) (v)
43) (ii)	44) (iv)	45) (iv)	46) (iv)	47) (iii)	48) (ii)
49) (ii)	50) (iii)	51) (i)	52) (iv)	53) (i)	54) (iv)
55) (v)	56) (i)	57) (iii)	58) (iv)	59) (ii)	60) (iv)
61) (v)	62) (ii)	63) (i)	64) (iii)	65) (v)	66) (v)
67) (i)	68) (iii)	69) (iii)	70) (ii)	71) (iv)	72) (v)
73) (v)					