EduSahara™ Assignment

Name : Triangle Problems

Chapter : Triangles

Grade : ICSE Grade VIII

1. Two angles of a triangle measure 51° and 69° respectively. Find the measure of the third angle of the triangle

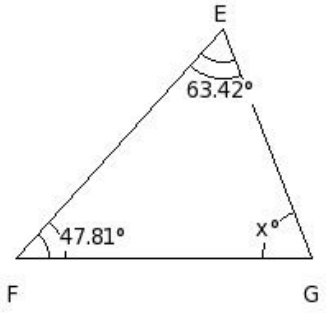
   (i) 62° (ii) 60° (iii) 61° (iv) 59° (v) 58°

2. The angles of a triangle ABC are in the ratio 23 : 13 : 54. Find the measure of each angle of the triangle

   (i) A=44°,B=28°,C=108° (ii) A=46°,B=26°,C=108° (iii) A=44°,B=26°,C=110°

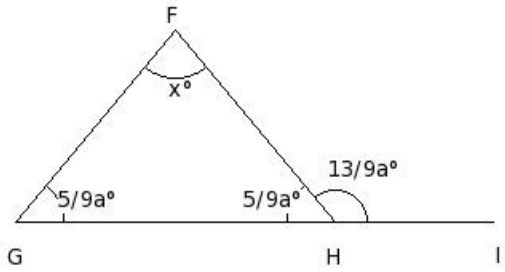
   (iv) A=46°,B=24°,C=110° (v) A=48°,B=26°,C=106°

3. Find the unknown angle from the following figure



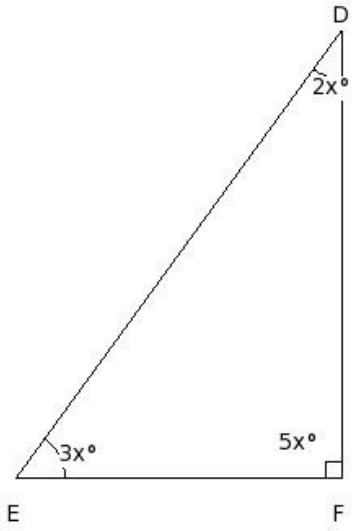
   (i) x=68.77° (ii) x=66.77° (iii) x=67.77° (iv) x=70.77° (v) x=69.77°

4. In the given figure, △FGH in which side GH has been produced to I. If ∠HFG = x° , ∠FGH = (5/9a)° , ∠GHF = (5/9a)° and ∠FHI = (13/9a)°, find the values of a and x.



   (i) a=92°,x=82° (ii) a=90°,x=80° (iii) a=89°,x=79° (iv) a=91°,x=81° (v) a=88°,x=78°

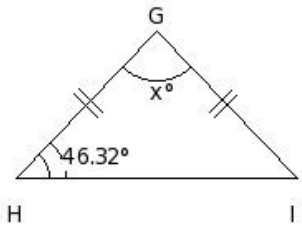
5. Find the angles of the triangle



(i) D=34°,E=56°,F=90° (ii) D=36°,E=54°,F=90° (iii) D=34°,E=54°,F=92° (iv) D=36°,E=52°,F=92°

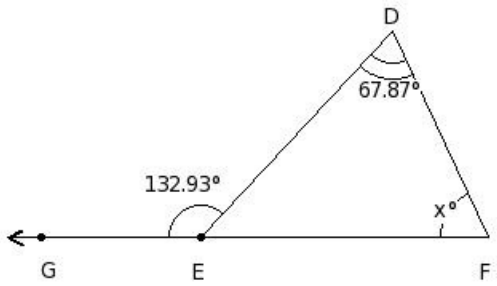
(v) D=38°,E=54°,F=88°

6. Calculate the value of x in the following figure



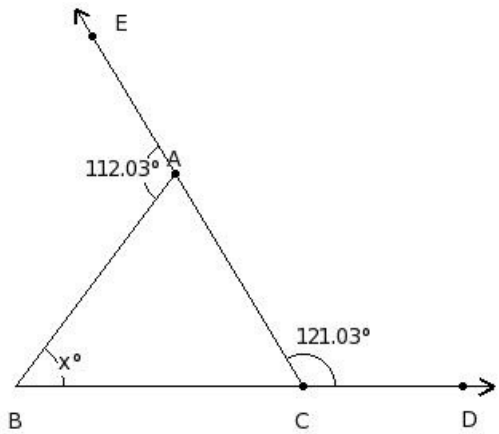
(i) x=85.36° (ii) x=89.36° (iii) x=88.36° (iv) x=87.36° (v) x=86.36°

7. Calculate the value of x in the following figure



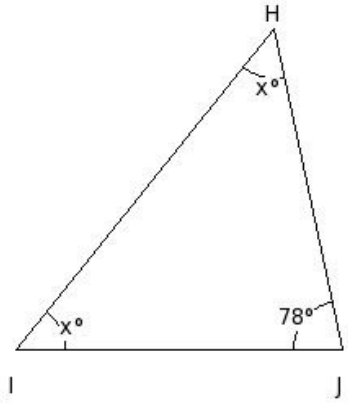
(i) x=65.06° (ii) x=67.06° (iii) x=66.06° (iv) x=64.06° (v) x=63.06°

8. Find the unknown marked angle in the following figure



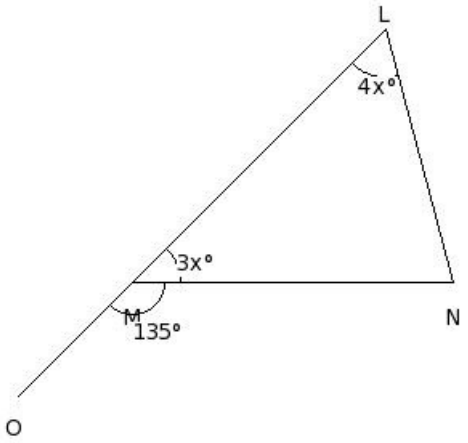
(i) x=54.06° (ii) x=53.06° (iii) x=55.06° (iv) x=52.06° (v) x=51.06°

9. Find the unknown angles in the following figure



(i) H=50°,I=50° (ii) H=49°,I=49° (iii) H=52°,I=52° (iv) H=53°,I=53° (v) H=51°,I=51°

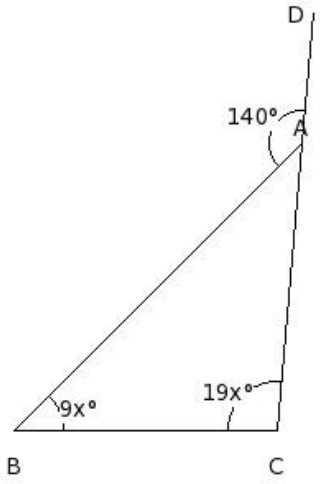
10. In the following figure, one side of a triangle has been produced. Find all the angles of the triangle



(i) L=58°,M=47°,N=75° (ii) L=60°,M=43°,N=77° (iii) L=62°,M=45°,N=73° (iv) L=58°,M=45°,N=77°

(v) L=60°,M=45°,N=75°

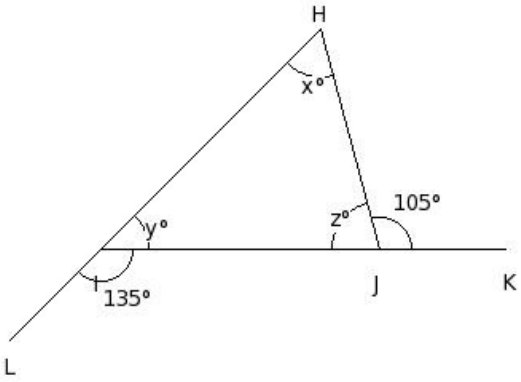
11. In the following figure, one side of a triangle has been produced. Find all the angles of the triangle.



(i) A=40°,B=45°,C=95° (ii) A=38°,B=47°,C=95° (iii) A=38°,B=45°,C=97° (iv) A=42°,B=45°,C=93°

(v) A=40°,B=43°,C=97°

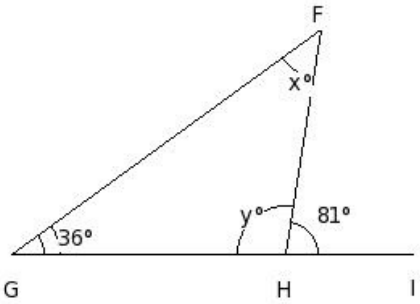
12. In the following figure, two sides of a triangle have been produced. Find all the angles of the triangle.



(i) x=58°,y=47°,z=75° (ii) x=60°,y=43°,z=77° (iii) x=60°,y=45°,z=75° (iv) x=62°,y=45°,z=73°

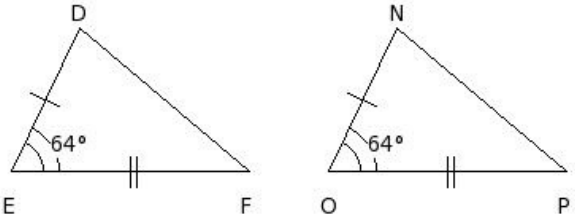
(v) x=58°,y=45°,z=77°

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



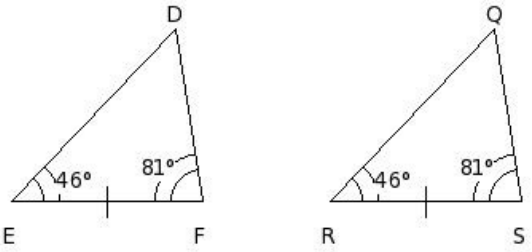
(i) x=47°,y=101° (ii) x=43°,y=97° (iii) x=45°,y=99° (iv) x=46°,y=100° (v) x=44°,y=98°

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



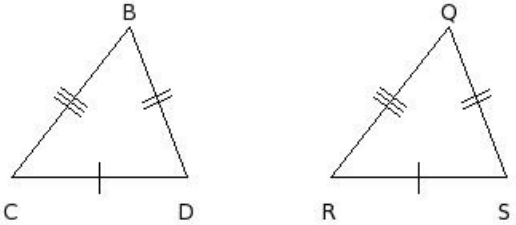
(i) SSS Congruency (ii) RHS Congruency (iii) ASA Congruency (iv) SAS Congruency

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



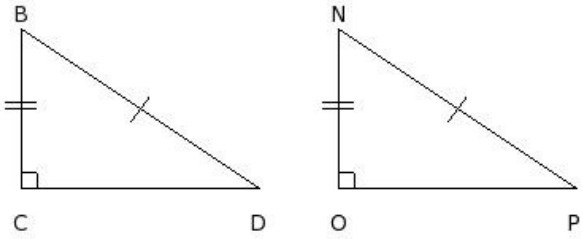
(i) RHS Congruency (ii) ASA Congruency (iii) SSS Congruency (iv) SAS Congruency

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



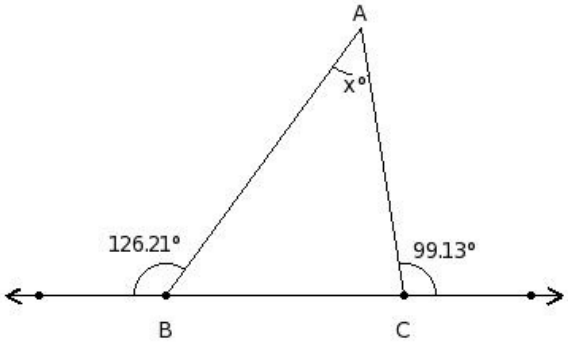
(i) ASA Congruency (ii) SSS Congruency (iii) SAS Congruency (iv) RHS Congruency

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



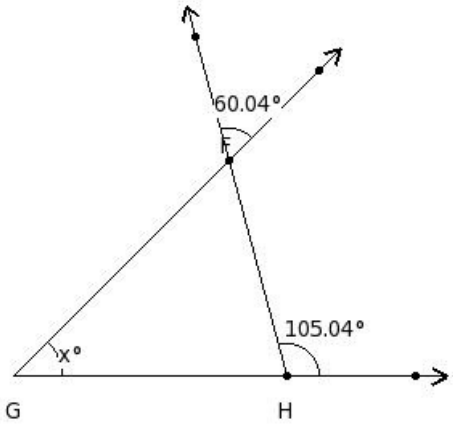
(i) RHS Congruency (ii) SAS Congruency (iii) SSS Congruency (iv) ASA Congruency

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



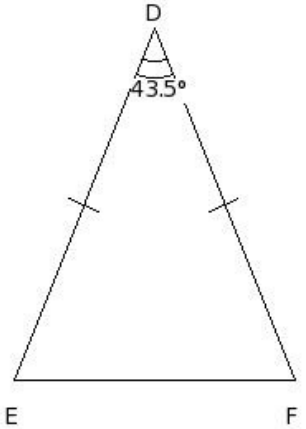
(i) x=43.34° (ii) x=47.34° (iii) x=45.34° (iv) x=46.34° (v) x=44.34°

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



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

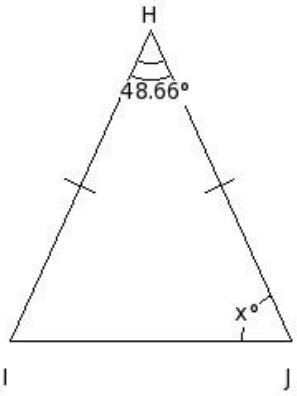
20. In the given triangle, ∠D = 43.5°. Find the measure of ∠E and ∠F



(i) ∠E = ∠F = 66.25° (ii) ∠E = ∠F = 68.25° (iii) ∠E = ∠F = 70.25° (iv) ∠E = ∠F = 69.25°

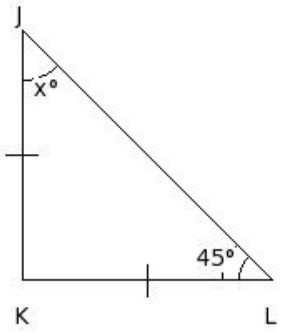
(v) ∠E = ∠F = 67.25°

21. Find the unknown angle in the following figure



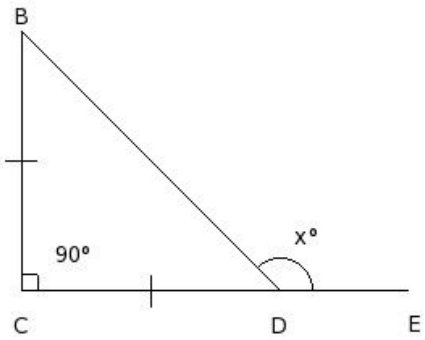
(i) x=63.67° (ii) x=65.67° (iii) x=64.67° (iv) x=67.67° (v) x=66.67°

22. Find the unknown angle in the following figure



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

23. Find the unknown angle in the following figure



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

24. In △FGH, if ∠F = 55° and ∠G = 51°, find the measure of ∠H

(i) H=76° (ii) H=73° (iii) H=72° (iv) H=75° (v) H=74°

25. In △JKL, if ∠J = 80° and ∠K = ∠L, find the measure of each of the equal angles of the triangle

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

26. One angle of a triangle measures 55° and the other two angles are in the ratio 2 : 3. Find these angles.

(i) B=50°,C=75° (ii) B=48°,C=73° (iii) B=52°,C=77° (iv) B=49°,C=74° (v) B=51°,C=76°

27. In a right-angled triangle, the two acute angles are in the ratio 1 : 1. Find these angles.

(i) A=47°,C=47° (ii) A=46°,C=46° (iii) A=43°,C=43° (iv) A=44°,C=44° (v) A=45°,C=45°

28. One of the two equal angles of an isosceles triangle measures 56°. Find the measure of each angle of the triangle.

(i) A=58°,B=56°,C=66° (ii) A=54°,B=58°,C=68° (iii) A=56°,B=54°,C=70° (iv) A=56°,B=56°,C=68°

(v) A=54°,B=56°,C=70°

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

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

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

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

31. In a right-angled triangle if one of the acute angles is 44°, find the measure of the other acute angle.

(i) 44° (ii) 47° (iii) 48° (iv) 45° (v) 46°

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

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

(iv) A=118°,B=32°,C=30° (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=18°,B=82°,C=80° (ii) A=20°,B=80°,C=80° (iii) A=20°,B=78°,C=82° (iv) A=18°,B=80°,C=82°

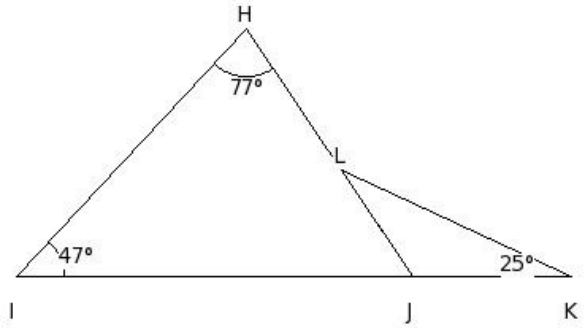
(v) A=22°,B=80°,C=78°

34. The ratio between the base angle and the vertical angle of an isosceles triangle is 1 : 2. Find each angle of the triangle

(i) A=88°,B=47°,C=45° (ii) A=90°,B=45°,C=45° (iii) A=88°,B=45°,C=47° (iv) A=90°,B=43°,C=47°

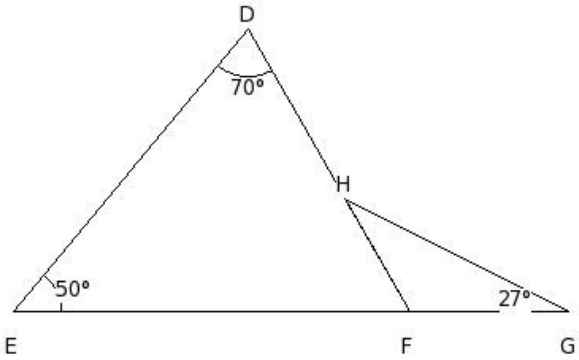
(v) A=92°,B=45°,C=43°

35. In the given figure, find ∠IJH



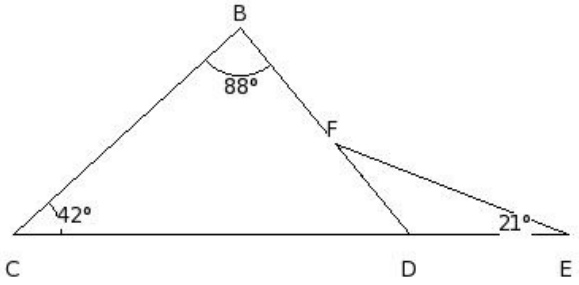
(i) 55° (ii) 58° (iii) 54° (iv) 57° (v) 56°

36. In the given figure, find ∠HFG



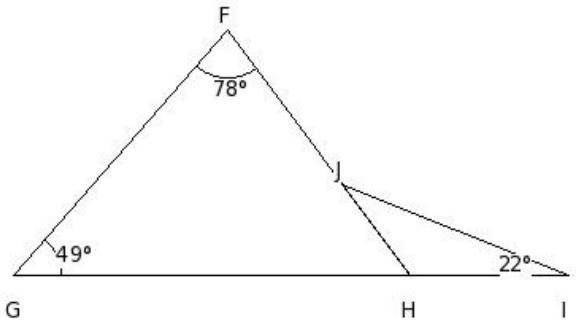
(i) 122° (ii) 118° (iii) 120° (iv) 119° (v) 121°

37. In the given figure, find ∠EFD



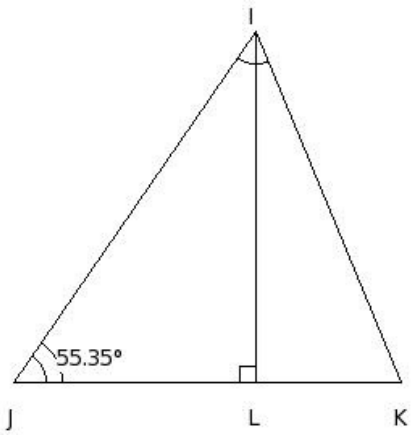
(i) 29° (ii) 28° (iii) 30° (iv) 31° (v) 27°

38. In the given figure, find ∠FJI



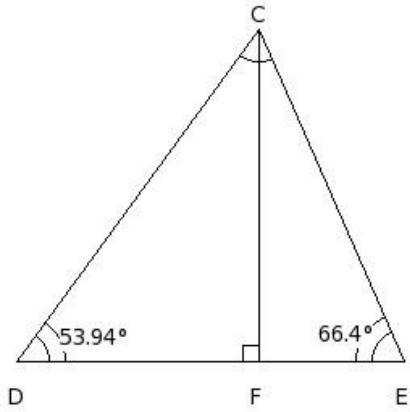
(i) 148° (ii) 147° (iii) 149° (iv) 150° (v) 151°

39. In the given figure , if LI ⊥ JK and ∠IJL = 55.35°, find ∠LIJ



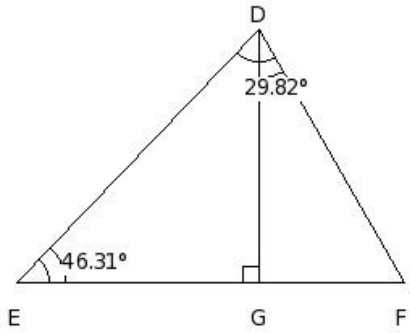
(i) 35.65° (ii) 33.65° (iii) 34.65° (iv) 32.65° (v) 36.65°

40. In the given figure , if FC ⊥ DE and ∠CDF = 53.94°, find ∠ECF



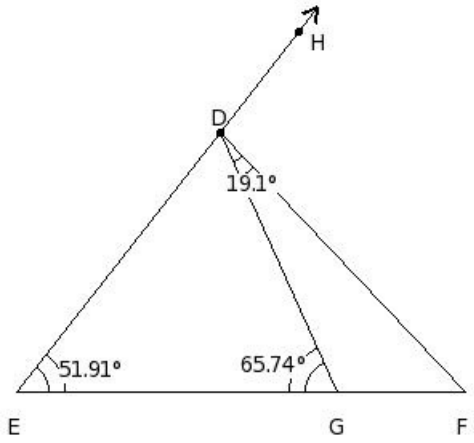
(i) 22.60° (ii) 24.60° (iii) 25.60° (iv) 23.60° (v) 21.60°

41. In the given figure , if GD ⊥ EF and ∠DEG = 46.31°, find ∠GFD



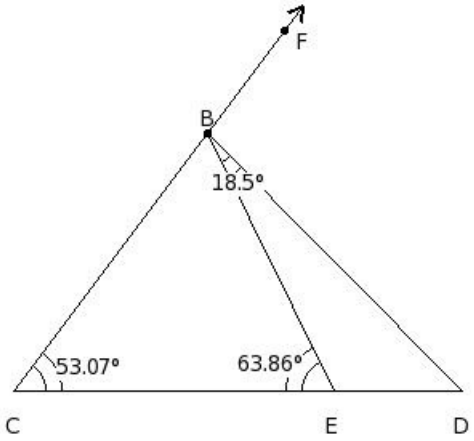
(i) 58.18° (ii) 61.18° (iii) 59.18° (iv) 60.18° (v) 62.18°

42. In below given figure, find ∠DGF



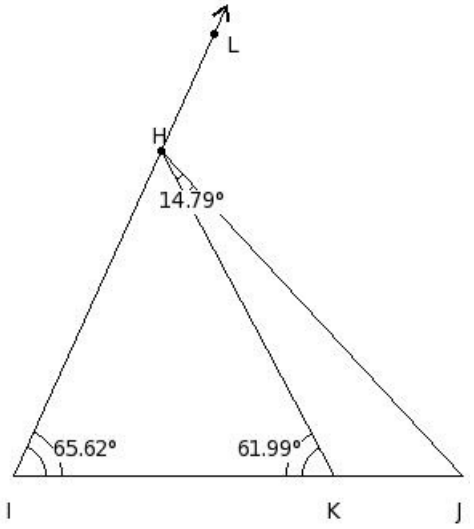
(i) 115.26° (ii) 112.26° (iii) 114.26° (iv) 113.26° (v) 116.26°

43. In below given figure, find ∠EBC



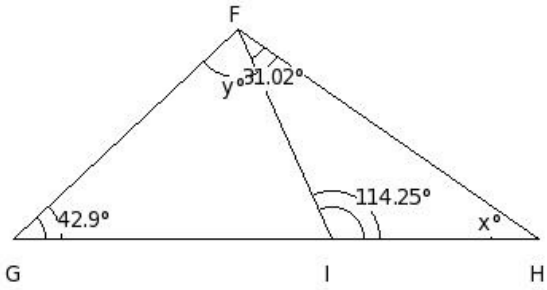
(i) 65.07° (ii) 63.07° (iii) 62.07° (iv) 61.07° (v) 64.07°

44. In below given figure, find ∠JHL



(i) 114.82° (ii) 110.82° (iii) 113.82° (iv) 112.82° (v) 111.82°

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



(i) x=33.73°,y=70.35° (ii) x=32.73°,y=69.35° (iii) x=34.73°,y=71.35° (iv) x=35.73°,y=72.35°

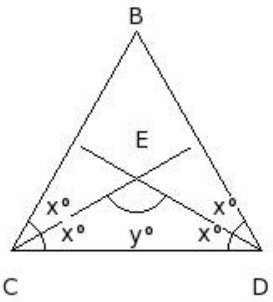
(v) x=36.73°,y=73.35°

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

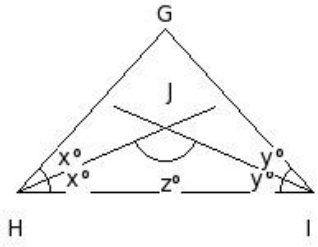
(v) X=43°,Y=92°,Z=45°

47. In the given figure, $\triangle BCD$ is a triangle in which $\angle B = \angle C = \angle D$.
This bisectors of $\angle C$ and $\angle D$ intersect at E. Find $\angle E =$



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

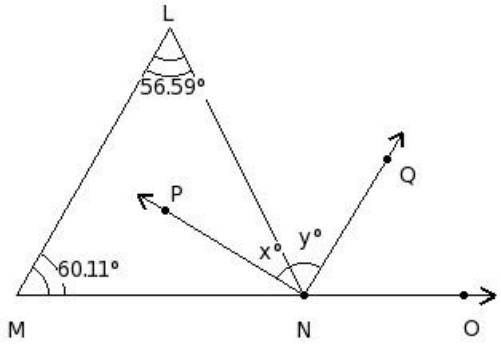
48. In the given figure, $\triangle GHI$ is a triangle in which $\angle H = 47.73°$ and $\angle I = 47.73°$.
If 'z' is the angle between the bisector of $\angle H$ and $\angle I$, then find z.



(i) 133.27° (ii) 132.27° (iii) 131.27° (iv) 130.27° (v) 134.27°

In the given figure, $\angle L = 56.59°$ and $\angle M = 60.11°$.

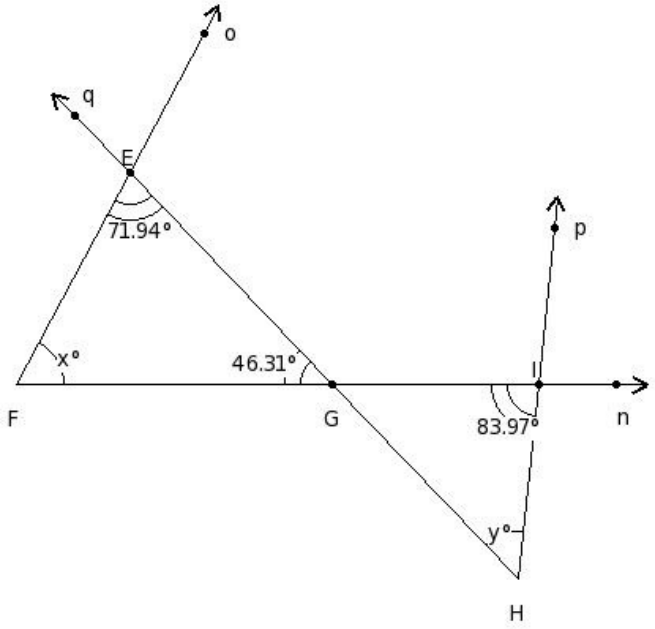
49. Side MN is produced to O, so that $\angle MNL$ and $\angle LNO$ form a linear pair.
If $\overrightarrow{NP}$ and $\overrightarrow{NQ}$ are the bisectors of $\angle MNL$ and $\angle LNO$, find x and y.



(i) $x = 32.65°, y = 59.35°$ (ii) $x = 30.65°, y = 57.35°$ (iii) $x = 29.65°, y = 56.35°$ (iv) $x = 33.65°, y = 60.35°$

(v) $x = 31.65°, y = 58.35°$

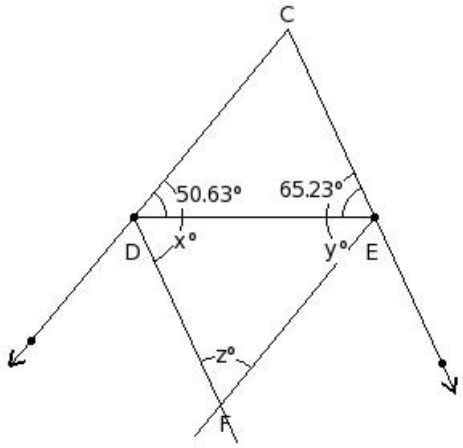
50. In the given figure, find the values of x and y



(i) x=63.75°,y=51.72° (ii) x=59.75°,y=47.72° (iii) x=61.75°,y=49.72° (iv) x=62.75°,y=50.72°

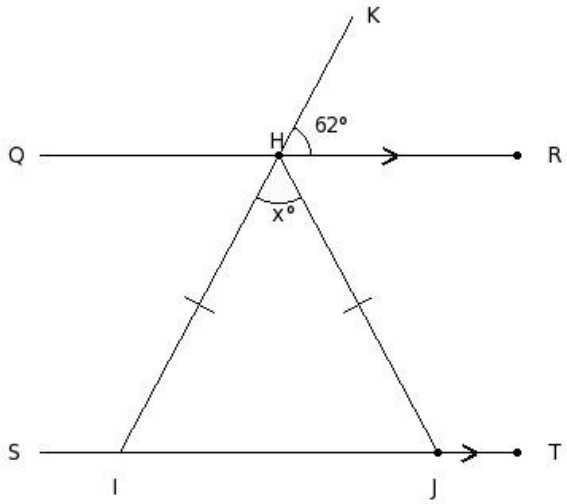
(v) x=60.75°,y=48.72°

51. In the given figure, △CDE in which ∠D = 50.63° and ∠E = 65.23°. CF and DE bisects each other. Find the value of z



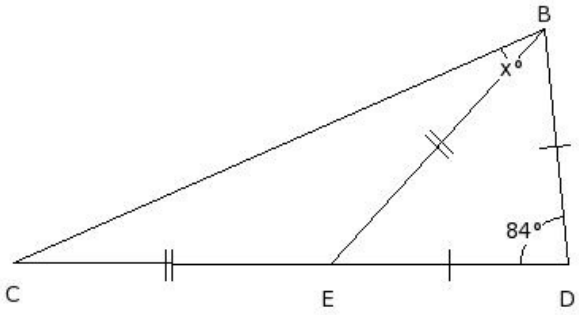
(i) z=64.14° (ii) z=63.14° (iii) z=66.14° (iv) z=65.14° (v) z=62.14°

52. In the given figure, QR ∥ ST, ∠KHR = 62° and HI = JH. Find the measure of x.



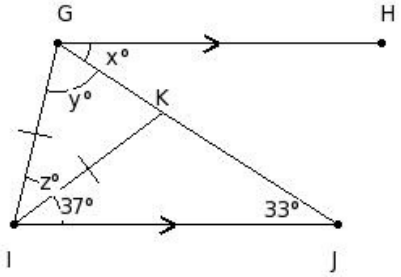
(i) x=54° (ii) x=56° (iii) x=58° (iv) x=55° (v) x=57°

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



(i) x=22° (ii) x=24° (iii) x=25° (iv) x=26° (v) x=23°

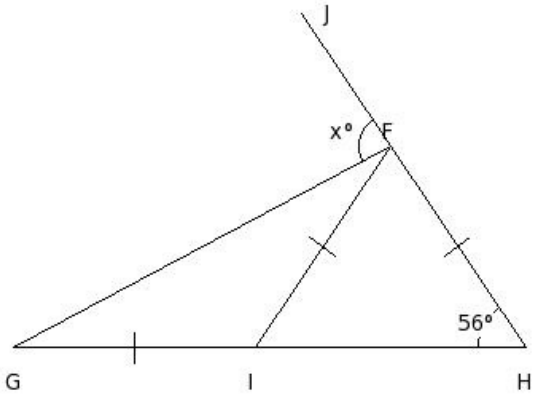
54. In the given figure, GH ∥ IJ and GI = IK. Find the values of x,y and z.



(i) x=35°,y=70°,z=38° (ii) x=31°,y=72°,z=40° (iii) x=33°,y=68°,z=42° (iv) x=31°,y=70°,z=42°

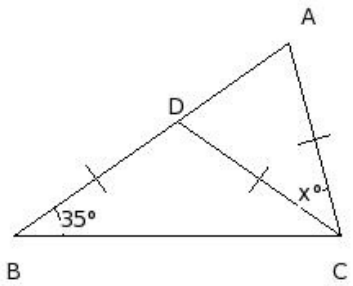
(v) x=33°,y=70°,z=40°

55. In the given figure, if HF = FI = GI. Find the value of x.



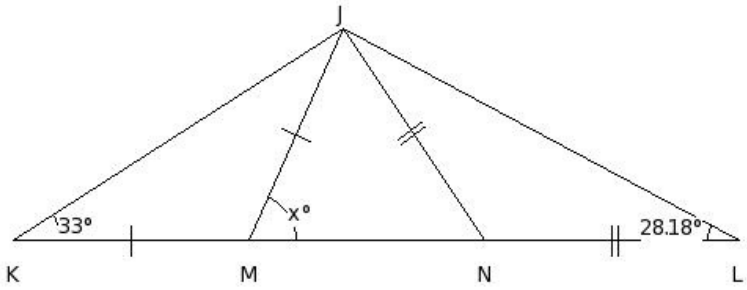
(i) x=83° (ii) x=82° (iii) x=84° (iv) x=86° (v) x=85°

56. In the given figure, if CA = CD = DB, find the value of x



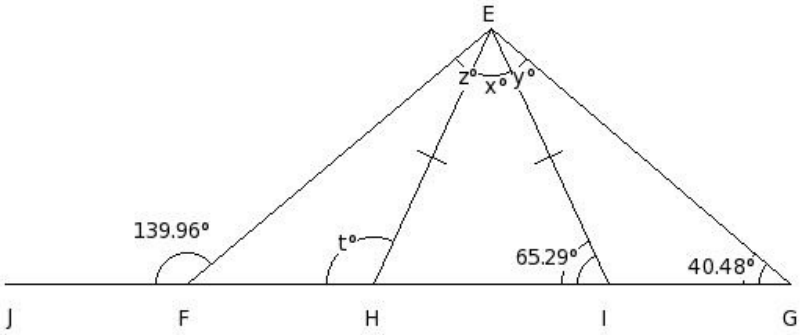
(i) x=40° (ii) x=39° (iii) x=42° (iv) x=38° (v) x=41°

57. In the given figure, if MJ = KM and JN = NL , find the value of x.



(i) x=67° (ii) x=64° (iii) x=65° (iv) x=66° (v) x=68°

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

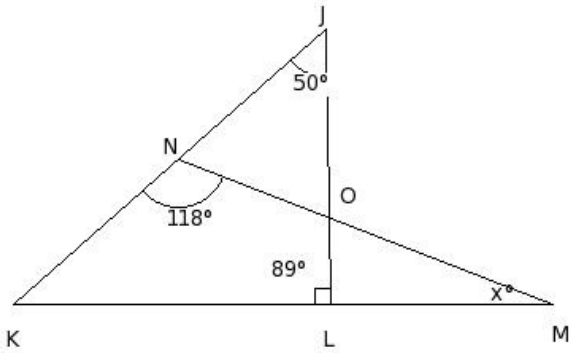


(i) x =49.42°, y =24.81°, z =24.25° , t =113.71° (ii) x =49.42°, y =24.81°, z =26.25° , t =115.71°

(iii) x =49.42°, y =26.81°, z =27.25° , t =114.71° (iv) x =49.42°, y =22.81°, z =23.25° , t =114.71°

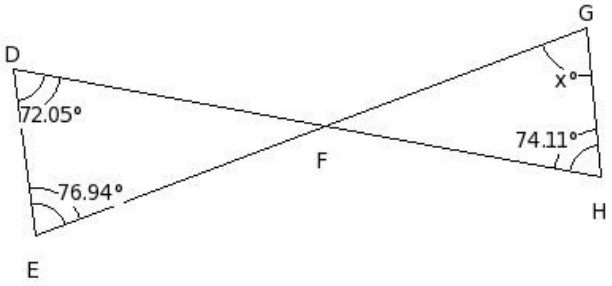
(v) x =49.42°, y =24.81°, z =25.25° , t =114.71°

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



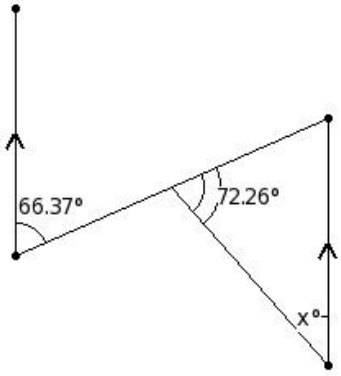
(i) x=20° (ii) x=22° (iii) x=19° (iv) x=21° (v) x=23°

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



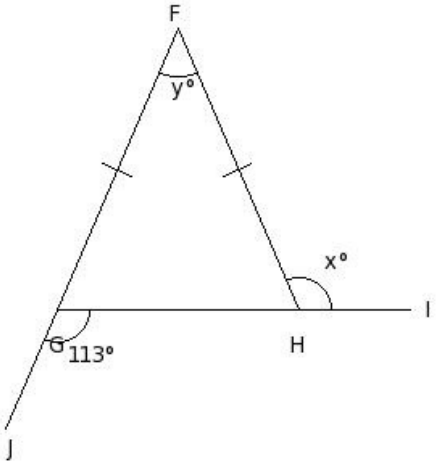
(i) x=74.88° (ii) x=73.88° (iii) x=75.88° (iv) x=72.88° (v) x=76.88°

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



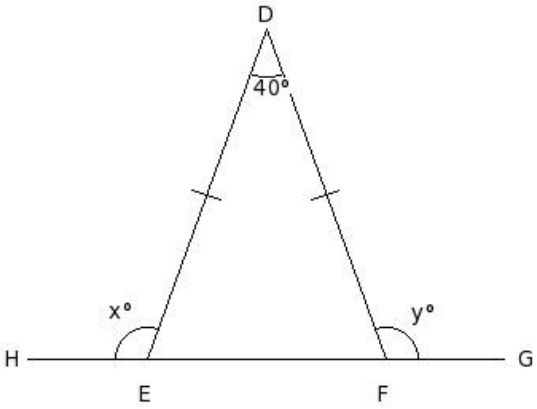
(i) x=43.37° (ii) x=42.37° (iii) x=40.37° (iv) x=41.37° (v) x=39.37°

62. Find the unknown marked angles in the following figure



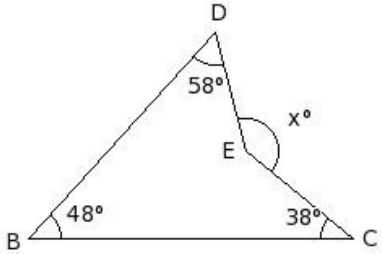
(i) x=112°,y=45° (ii) x=114°,y=47° (iii) x=113°,y=46° (iv) x=115°,y=48° (v) x=111°,y=44°

63. Find the unknown marked angles in the following figure



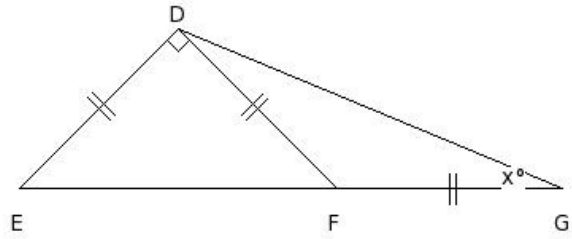
(i) x=109°,y=109° (ii) x=111°,y=111° (iii) x=112°,y=112° (iv) x=108°,y=108° (v) x=110°,y=110°

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



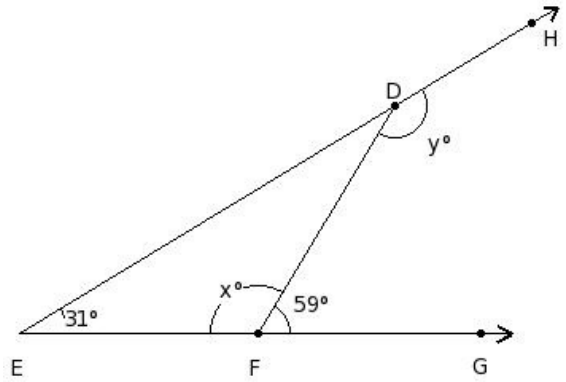
(i) x=142° (ii) x=145° (iii) x=146° (iv) x=143° (v) x=144°

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



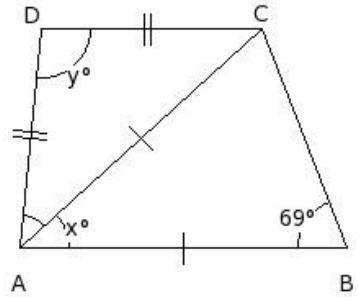
(i) x=22.5° (ii) x=20.5° (iii) x=21.5° (iv) x=23.5° (v) x=24.5°

66. Find the unknown marked angles in the following figure



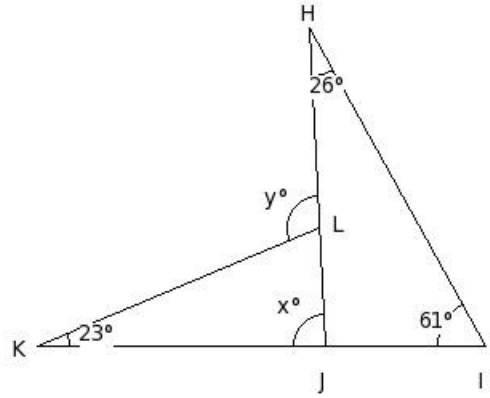
(i) x=120°,y=151° (ii) x=119°,y=150° (iii) x=121°,y=152° (iv) x=123°,y=154° (v) x=122°,y=153°

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



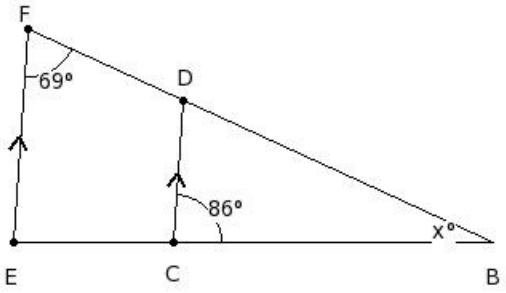
(i) x=42°,y=96° (ii) x=41°,y=95° (iii) x=44°,y=98° (iv) x=43°,y=97° (v) x=40°,y=94°

68. Find the unknown marked angles in the following figure



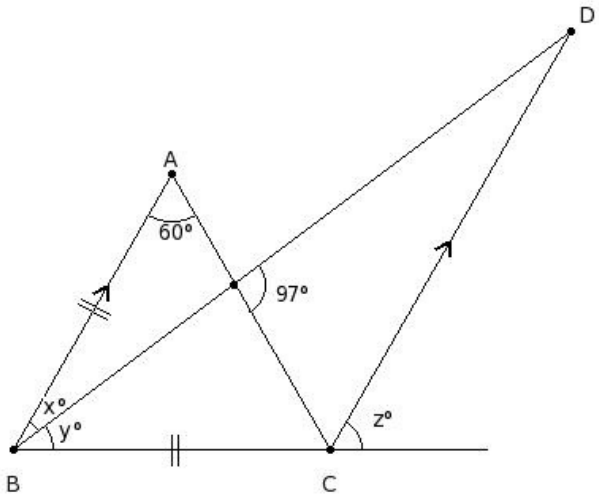
(i) x=85°,y=108° (ii) x=89°,y=112° (iii) x=86°,y=109° (iv) x=87°,y=110° (v) x=88°,y=111°

69. In the given figure, it is given that DC ∥ FE , ∠DFE = 69° and ∠DCB = 86°. Find the value of x.



(i) x=25° (ii) x=23° (iii) x=27° (iv) x=24° (v) x=26°

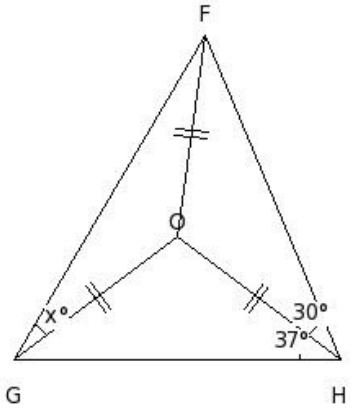
70. In the given figure, find the values of x ,y and z.



(i) x=25°,y=37°,z=58° (ii) x=23°,y=37°,z=60° (iii) x=21°,y=39°,z=60° (iv) x=23°,y=35°,z=62°

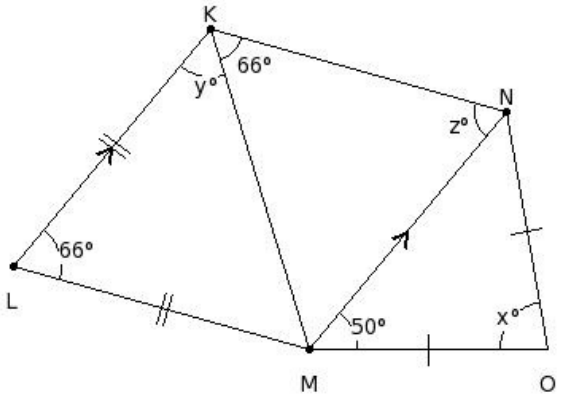
(v) x=21°,y=37°,z=62°

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



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

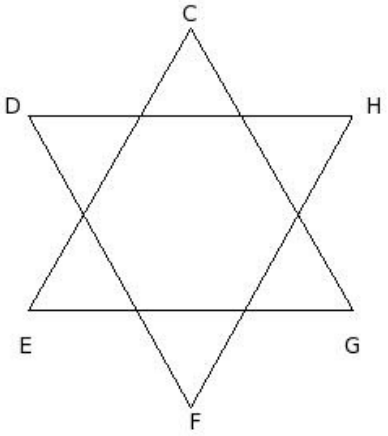
72. In the given figure, find the values of x ,y and z.



(i) x=78°,y=59°,z=66° (ii) x=80°,y=57°,z=66° (iii) x=78°,y=57°,z=68° (iv) x=80°,y=55°,z=68°

(v) x=82°,y=57°,z=64°

73. In the given two equilateral triangles, find ∠C + ∠E + ∠G + ∠D + ∠F + ∠H .



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

Assignment Key

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