WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

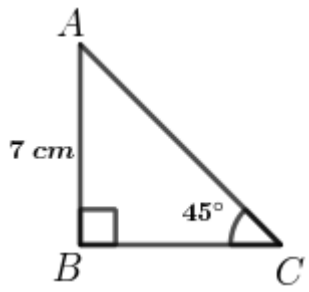
FOCUS AREA - QUESTION BANK - TRIGNOMETRY

1 ***In the figure*** $\angle B=90^o, \angle C=45^o, AB=7\,cm$.

a) ***What is the measure of*** $\angle A$ **?**

b) ***What is the length of*** BC **?**

c) ***What is the perimeter of the triangle*** ABC **?**

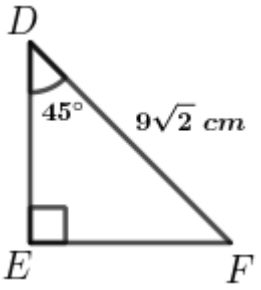


2 ***In the figure*** $\angle E=90^o, \angle D=45^o, DF=9\sqrt{2}\,cm$.

a) ***What is the measure of*** $\angle F$ **?**

b) ***What is the length of*** EF **?**

c) ***What is the area of the triangle*** $DE\,F$ **?**

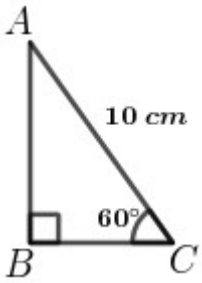


3 ***In the figure*** $\angle B=90^o, \angle C=60^o, AC=10\,cm$.

a) What is the measure of $\angle A$ ***?***

b) What is the length of BC ***?***

c) What is the perimeter of the triangle ABC ***?***

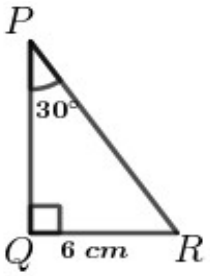


4 ***In the figure*** $\angle Q=90^o, \angle P=30^o, QR=6\,cm$.

a) ***What is the measure of*** $\angle R$ **?**

b) ***What is the length of*** PR **?**

c) ***What is the perimeter of the triangle*** PQR **?**

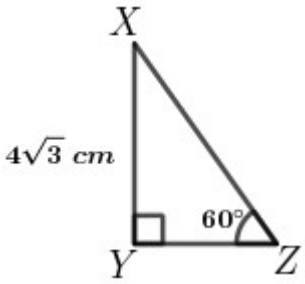


5 ***In the figure*** $\angle Y=90^o, \angle Z=60^o, XY=4\sqrt{3}\,cm$.

a) ***What is the measure of*** $\angle X$ **?**

b) ***What is the length of*** YZ **?**

c) ***What is the perimeter of the triangle*** XYZ **?**



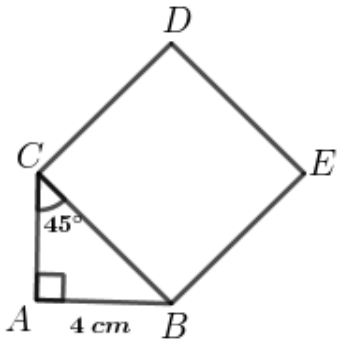
6

In the figure $\angle A = 90^0, \angle ACB = 45^0, AB = 4\,cm$.

a) What is the measure of $\angle ABC$ ***?***

b) What is the length of AC ***?***

c) What is the perimeter of the square $BCDE$ ***?***



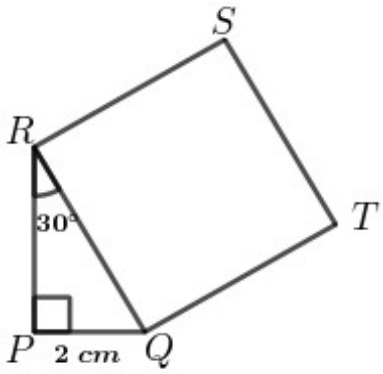
7

In the figure $\angle P = 90^0, \angle PRQ = 30^0, PQ = 2\,cm$.

a) ***What is the measure of*** $\angle PQR$ **?**

b) ***What is the length of*** PR **?**

c) ***What is the area of the square*** $QRST$ **?**



8

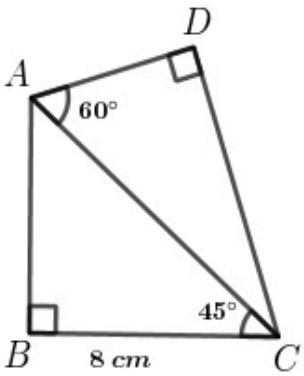
In the figure $BC = 8\,cm, \angle B = \angle D = 90^0, \angle ACB = 45^0, \angle CAD = 60^0$

a) What is the measure of $\angle BAC$ ***?***

b) What is the length of AC ***?***

c) What is the area of triangle ADC ***?***

d) What is the perimeter of quadrilateral $ABCD$ ***?***



9

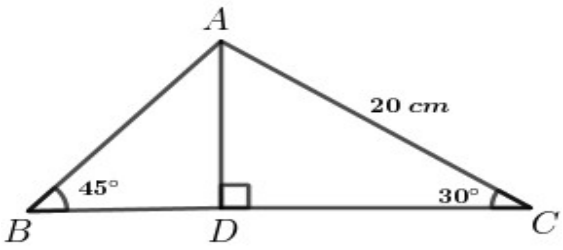
In the figure $AC = 20\,cm, \angle B = 45^0, \angle C = 30^0$

The line AD is perpendicular to the side BC .

a) What is the measure of $\angle BAC$ ***?***

b) What is the length of AD ***?***

c) What is the perimeter of triangle ABC ***?***

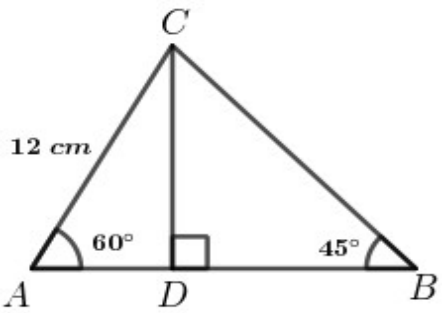


d) ***What is the ratio of the length of the sides if the ratio of angles of a triangle is*** **2:3:7 ?**

10

In the figure $AC=12\,cm, <A=60^0, <B=45^0$

The line CD ***is perpendicular to the side*** AB **.**



a) What is the measure of $<ACB$ ***?***

b) What is the length of CD ***?***

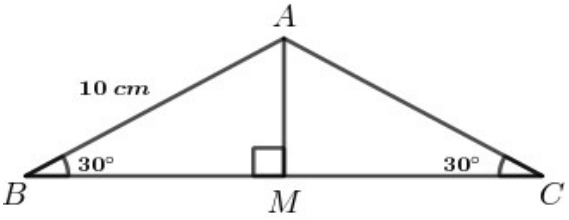
c) What is the area of triangle ABC ***?***

d) What is the ratio of the length of the sides if the ratio of angles of a triangle is **3:4:5 ?**

11

In the figure $BC=10\,cm, <B=<C=30^0$

The line AM ***is perpendicular to the side*** BC



a) What is the measure of $<BAM$ ***?***

b) What is the length of AM ***?***

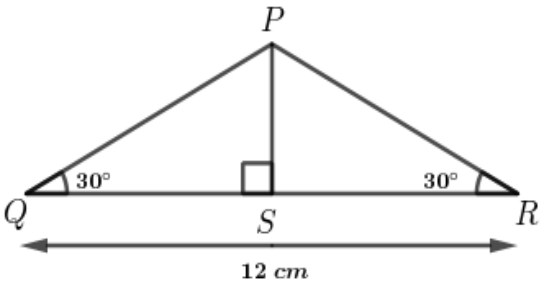
c) What is the area of triangle ABC ***?***

d) ***What is the ratio of the length of the sides if the ratio of angles of a triangle is*** **1:1:4 ?**

12

In the figure $QR=12\,cm, <Q=<R=30^0$

The line PS ***is perpendicular to the side*** QR



a) What is the measure of $<QPS$ ***?***

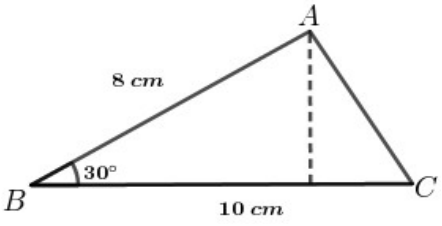
b) What is the length of QS ***?***

c) What is the area of triangle PQR ***?***

d) What is the ratio of the length of the sides of triangle PQR ***?***

13

In the figure $<B=30^\circ, AB=8\,cm, BC=10\,cm$



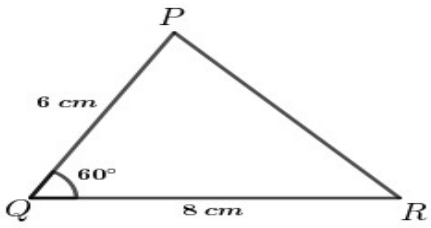
a) ***What is the perpendicular distance from A to the side BC ?***

c) What is the area of the triangle ?

14 ***In the figure*** $<Q=60^\circ, PQ=6\,cm, QR=8\,cm$

b) What is the perpendicular distance from P to the side QR ?

c) What is the area of the triangle ?

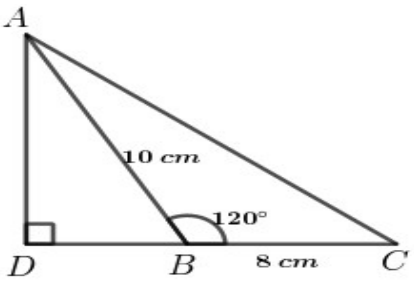


15 ***In the figure*** $<B=120^0, <D=90^0, AB=10\,cm, BC=8\,cm$

a) What is the measure of $<ABD$ ***?***

b) What is the length of AD ***?***

c) What is the area of triangle ABC ***?***

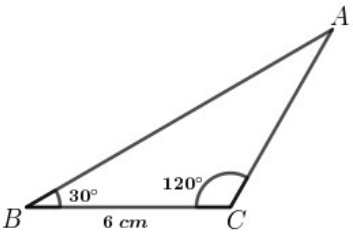


16 ***In triangle*** ABC **,** $<B=30^\circ, <C=120^\circ, BC=6\,cm$

a) What is the measure of $<A$ ***?***

b) What is the perpendicular distance from A to the side BC ?

c) What is the area of the triangle ?

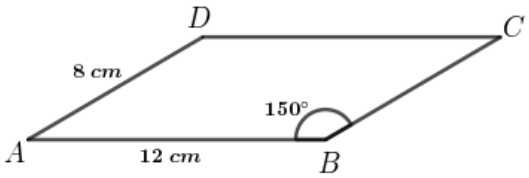


17 ***In parallelogram*** $ABCD$ **,** $AB=12\,cm, AD=8\,cm, <B=150^0$

a) What is the measure of $<A$ ***?***

b) What is the distance from D ***to the side*** AB ***?***

c) What is the area of the parallelogram ?



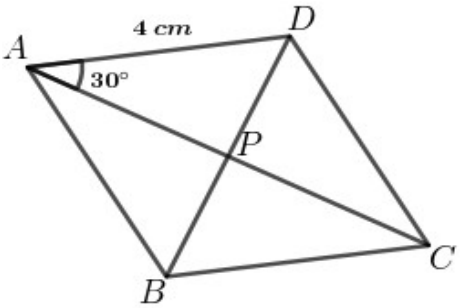
18 ***The diagonals of a rhombus*** $ABCD$ ***intersect at*** P **.** $AD=4\,cm, <PAD=30^0$

a) What is the measure of $<APD$ ***?***

b) What is the length of DP ***?***

c) What is the length of diagonal AC ***?***

d) What is the area of the rhombus ?

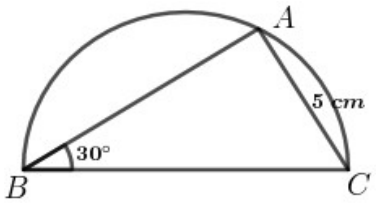


19 ***In the figure*** BC ***is the diameter of the semicircle .*** $<B=30^0, AC=5\,cm$

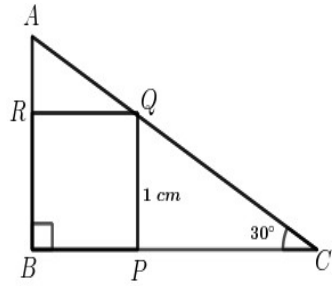
a) What is the measure of $<BAC$ ***?***

b) What is the radius of the semicircle ?

c) What is the perimeter of triangle ABC ***?***



20 ***In the figure*** $BPQR$ ***is a square .*** $PQ=1\,cm, <C=30^0$



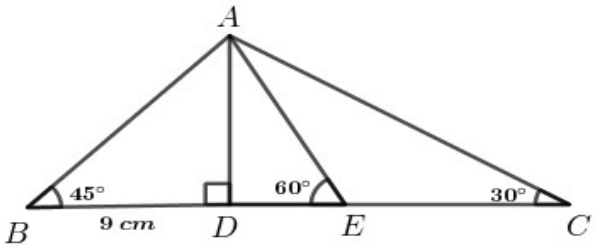
a) What is the measure of $<A$ ***?***

b) What is the length of CQ ***?***

c) What is the area of triangle AQR ***?***

d) What is the perimeter of triangle ABC ***?***

21 ***In the figure*** $<ABD=45^\circ, <ABD=90^\circ$ **,** $<AED=60^\circ, <ACE=30^\circ, BD=9\,cm$



a) ***What is the length of*** AD **?**

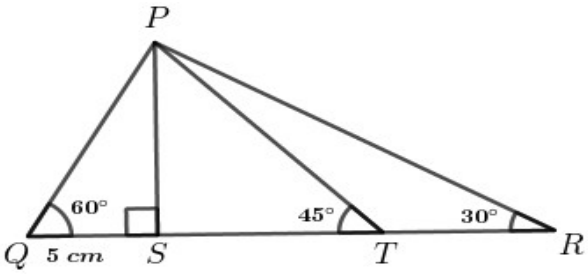
b) ***What is the length of*** CD **?**

c) ***What is the length of*** CE **?**

d) ***What is the perimeter of the triangle*** ACE **?**

22 ***In the figure*** $<PQS=60^\circ, <PSQ=90^\circ$

$<PTS=60^\circ, <PRT=30^\circ, QS=5\,cm$

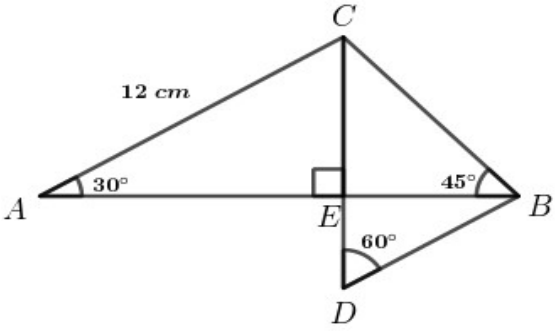


a) ***What is the length of*** PS **?**

b) ***What is the length of*** SR **?**

c) ***What is the length of*** TR **?**

23 ***In the figure*** $<BAC=30^\circ, <ABC=45^\circ$ **,** $<AEC=90^\circ, <BDE=60^\circ, AC=12\,cm$



a) ***What is the length of*** CE **?**

b) ***What is the length of*** BE **?**

c) ***What is the length of*** AB **?**

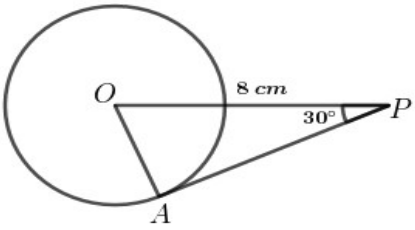
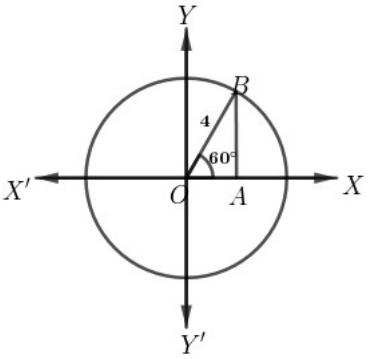
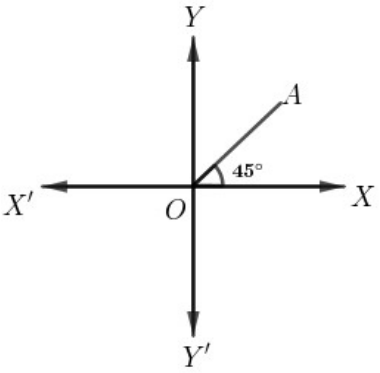
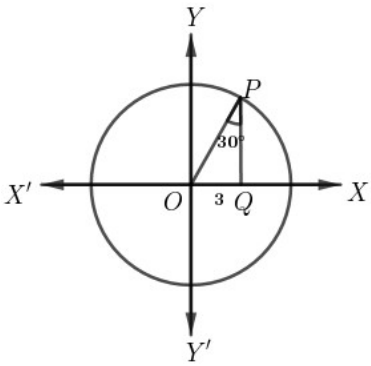
d) ***What is the area of the triangle*** BCD **?**

24 ***The slant height of a cone makes an angle*** 30^0 ***with its height . The slant height is*** **40** ***cm .***

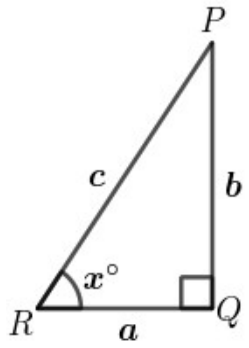
a) ***What is the relation connecting the radius, the height and the slant height of a cone?***

b) What is its radius ?

c) What is its lateral surface area ?

25	***The radius of a cone makes an angle 30^0 with its slant height .The radius is 9 cm .*** ***a) What is the relation connecting the radius, the height and the slant height of a cone?*** ***b) What is its slant height ?*** ***c) What is its volume ?***
26	***In the figure O is the centre of the circle . P is 8 cm away from O and PA is a tangent and $<OPA=30^0$.*** ***a) What is the measure of $<OAP$?*** ***b)What is the length of PA ?*** ***c) What is the perimeter of the circle ?*** 
27	***In the figure line AB is perpendicular to the x-axis.*** $OA=4\,cm, <AOB=60^0$ ***a) What is the measure of $<OAB$?*** ***b) What is the length of OB ?*** ***c) What are the coordinates of A ?*** 
28	***In the figure line OA makes an angle 45^0 with the x-axis.*** ***a) What are the coordinates of O ?*** ***b) What is the slope of line OA ?*** ***c) Write down the coordinates of a point on the line OA other than the origin ?*** 
29	***In the figure line PQ is perpendicular to the x-axis.*** $OQ=3\,cm, <OPQ=30^0$ ***a) What is the measure of $<POQ$?*** ***b) What is the radius of the circle ?*** ***c) What are the coordinates of P ?*** 

30 ***In triangle*** PQR , $\angle Q=90^0, \angle R=x^0$ ***and the length of the sides*** QR, PQ, PR ***are*** a, b, c ***respectively.***



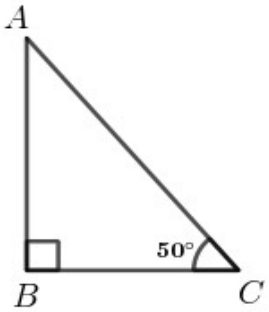
a) Which among the following is $\tan x^0$ ***?***

$$\left(\frac{b}{c}\ ,\ \frac{a}{c}\ ,\ \frac{b}{a}\ ,\ \frac{a}{b}\right)$$

b)Similarly write $\sin x^0$ ***and*** $\cos x^0$ ***from this triangle ?***

c) Prove that $\frac{\sin x^0}{\cos x^0}=\tan x^0$ ***?***

31 ***In triangle*** ABC , $\angle B=90^0, \angle C=50^0$.



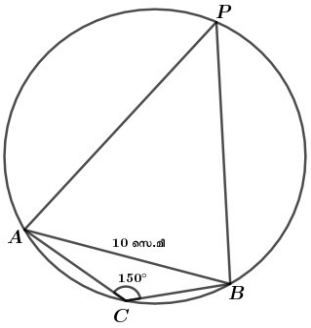
a) What is the measure of $\angle A$ ***?***

b) Which among the following is $\tan 50^0$ ***?***

$$\left(\frac{AB}{AC}\ ,\ \frac{BC}{AC}\ ,\ \frac{BC}{AB}\ ,\ \frac{AB}{BC}\right)$$

c) Prove that $\tan 50^0 \times \tan 40^0 = 1$ ***?***

32 ***In triangle*** ABC , $AB=10\,cm, \angle ACB=150^0$.

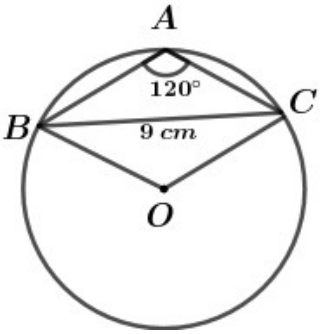


P ***is a point on the alternate arc of arc*** ACB .

a) What is the measure of $\angle APB$ ***?***

b)What is the circumdiameter of triangle ABC ***?***

33 ***In triangle*** ABC , $\angle BAC=120^0, BC=9\,cm$. O ***is the centreof the circle .***



a) What is the measure of the angle made on the alternate arc by an arc BAC ***?***

b) What is the measure of the angle made by a chord BC ***at the centre of the circle ?***

c) What is the radius of the circle ?

34	*When sun is an elevation of* 60^0 *, the length of the shadow of a tree is* 12 *meters.* *a) Draw a rough figure based on the given details ?* *b) What is the height of the tree ?* *c) What will be the length of the shadow if sun is an elevation of* 30^0 *?*
35	*Two children stand on either side of a tower of height* 42 *meters . First child sees the top of the tower at an elevation of* 30^0 *and the second child sees it at an elevation of* 60^0 *a) Draw a rough figure based on the given details?* *b) What is the distance between the tower and the first child ?* *c) What is the distance between the children ?*
36	*A man standing on the bottom of a hill sees the top of a mountain at an elevation of* 60^0 *and sees it from the top of the hill at an elevation of* 45^0 *.* *The mountain is* 500 *metres away from the hill .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the mountain ?* *c) What is the height of the hill ?*
37	*A man standing on the bottom of a building sees he top of a tower at an elevation of* 45^0 *and sees it from the top of the building at an elevation of* 30^0 *.* *The tower is 50 metres away from the building .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the tower ?* *c) What is the height of the building ?*
38	*Manu and Nandu stand on either side of a building . Manu sees the top of the building at an elevation of* 45^0 *and Nandu sees it an elevation of of* 30^0 *. The distance between the children is* 100 *metres .The building and the children are on the same line .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the building ?*

39	***Two boys stand on either side of a hill . First boy sees the top of the hill at an elevation of 60^0 and the second boy sees it at an elevation of 30^0 .The distance between the boys is 400 metres .The hill and the boys are on the same line.*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the hill ?***
40	***A man standing on the top of a 40 metres high building sees a car at a depression of 30^0*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the distance between the building and the car ?***
41	***A man standing on the top of a tower sees a car ,50 m away from the foot of the tower at a depression of 60^0 .*** ***a) Draw a rough figure based on the given details ?*** ***b)What is the height of the tower ?***
42	***A man standing on the top of a building sees the top of a tower at a depression of 30^0 and its base at a depression of 60^0 . The distance between the building and the tower is 90 metres .*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the building ?*** ***c) What is the height of the tower ?***
43	***A man standing on the top of a 30 metres high building sees the top of a flag post at a depression of 30^0 and its base at a depression of 45^0*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the distance between the building and the flag post ?*** ***c) What is the height of the flag post ?***
44	***A man standing on the top of a building sees the top of a hill it at an elevation of 30^0 and its base at a depression of 45^0 . The height of the building is 80 metres .*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the distance between the hill and the building ?*** ***c) What is the height of the hill ?***

45	*Two cars are parked on either side of a* **50** *metres high building .A man standing on the top of this building sees the cars at depressions of* 45^0 *and* 30^0 . *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the first car ?* *c) What is the distance between the cars ?*
46	*A man standing on the top of a building sees the top of a tower at an elevation of* 45^0 *and its base at a depression of* 30^0 *from . The height of the building is* **25** *metres.* *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the tower ?* *c) What is the height of the tower ?*
47	*A man standing on the top of a building sees the top of a hill at an elevation of* 30^0 *and its base at a depression of* 60^0 *. The height of the building is* **72** *metres .* *a) Draw a rough figure based on the given details ?* *b) What is the distance between the hill and the building ?* *c) What is the height of the hill ?*
	EXTRA QUESTIONS
48	*A boy standing* **300** *meters from the bottom of a hill sees its top at an elevation of* 30^0 . *Moving few metres towards the hill, he sees it an elevation of* 60^0 . *a) Draw a rough figure based on the given details?* *b) What is the height of the hill ?* *c) How far does the boy move towards the hill ?*
49	*A man standing away from the bottom of a flag post sees its top at an elevation of* 30^0 . *Moving* **20** *metres towards the flag post , he sees its top at an elevation of* 45^0 . *a) Draw a rough figure based on the given details ?* *b) What is the height of the hill ?*
50	*A man standing away from the bottom of a tower sees its top at an elevation of* 60^0. *Standing back by* **50** *metres , he sees it an elevation of* 30^0 . *a) Draw a rough figure based on the given details ?* *b) What is the height of the tower ?*

51	*A man saw the top of a building under construction at an elevation of* 30^0 *. The completed building was* 10 *metres higher and the man saw its top at an elevation of* 60^0 *a) Draw a rough figure based on the given details ?* *b) What is the height of the building ?* *c) What is the distance between the building and the man ?*
52	*A man standing on the top of a building sees a car at a depression of* 60^0 *. After moving down by* 20 *metres, he sees it at a depression of* 30^0 *.* *a) Draw a rough figure based on the given details ?* *b) What is the height of the building ?* *c) What is the distance between the building and the car ?*
53	*A man standing on the top of a building sees a car at a depression of* 60^0 *. When it moves* 50 *metres in the opposite direction of the building ,he sees it at a depression of* 30^0 *.* *a)Draw a rough figure based on the given details ?* *b)What is the height of the building ?*
54	*A man* 1.6 *metres tall standing at the bottom of a building sees the top of a hill at an elevation of* 60^0 *. He sees it again at an elevation of* 30^0 *from the top the building . The hill is* 90 *metres away from the building .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the hill S?* *c) What is the height of the building ?*
55	*A man* 1.8 *metres tall standing on the top of a building sees the top of a tower at an elevation of* 30^0 *and its base at a depression of* 45^0 *.The height of the building is* 28.2*m* *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the tower ?* *c) What is the height of the tower ?*

56	***A* 1.6 *metres tall boy saw the top of a building under construction at an elevation of* 30^0. *The completed building was* 10 *metres higher and he saw its top an elevation of* 60^0 *from the same spot.*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the building ?***