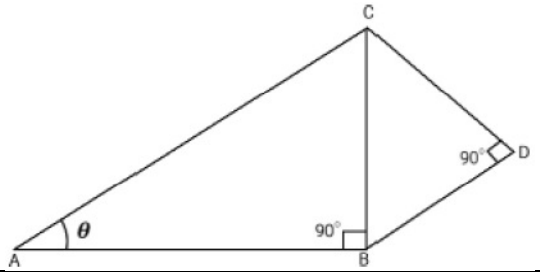
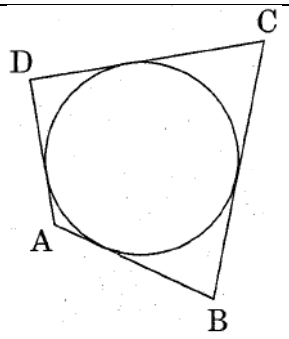
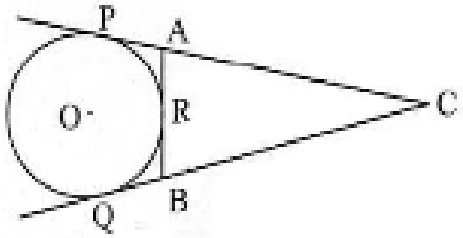
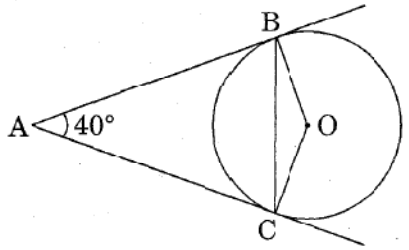
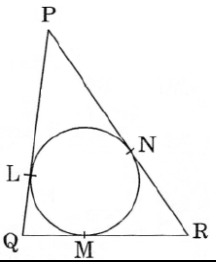
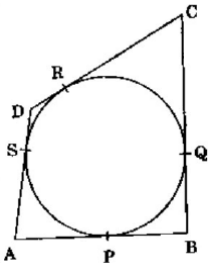
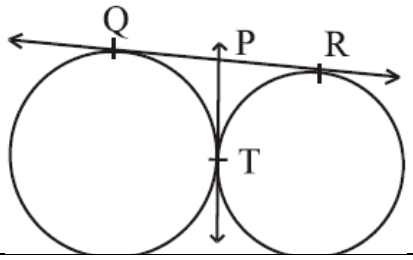
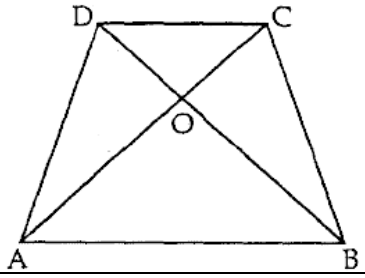
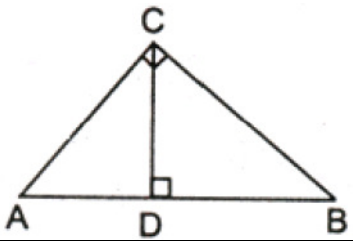
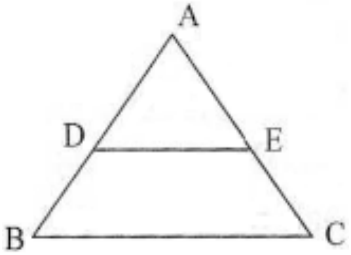
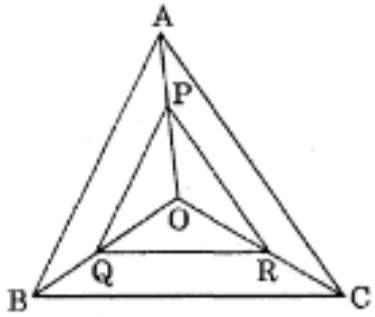
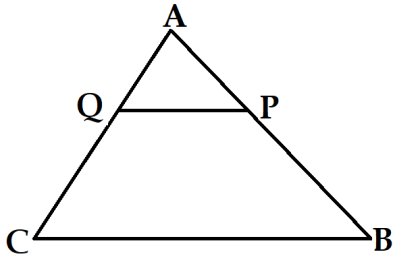
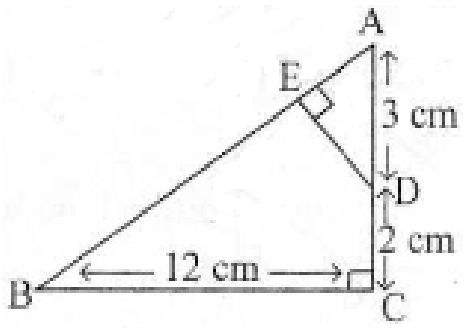
	CLASS X **MATHS** **100 REVISION QUESTIONS**
Q1	If $\tan A = \frac{5}{12}$, find the value of all remaining trigonometry ratios.
Q2	If $\tan A = \frac{7}{24}$, find the value of $(\sin A + \cos A)\sec A$.
Q3	In a ΔABC, right-angled at C, if $\tan A = \frac{1}{\sqrt{3}}$, find the value of $\sin A \cos B + \cos A \sin B$.
Q4	If $\sin\theta = \frac{1}{3}$, then find the value of $(2\cot^2\theta + 2)$.
Q5	If $\cot\theta = \frac{15}{8}$, then evaluate $\frac{(2+2\sin\theta)(1-\sin\theta)}{(1+\cos\theta)(2-2\cos\theta)}$.
Q6	Given that $\sin\theta = \frac{a}{b}$, , find the value of all remaining trigonometry ratios.
Q7	If $\sin\alpha = \frac{1}{2}$, find the then the value of $4\cos^3\alpha - 3\cos\alpha$.
Q8	If ABC is a triangle, right-angled at B, AB = 5 cm, $\angle ACB = 30°$. Find the length of BC and AC.
Q9	In figure, $AB = 5\sqrt{3}$ cm, DC = 4 cm, BD = 3 cm, find the then $\tan\theta$ 
Q10	If $4\tan\theta = 3$, evaluate $\left(\frac{4\sin\theta - \cos\theta + 1}{4\sin\theta + \cos\theta - 1}\right)$.
Q11	Prove that: $\frac{\cos\theta}{1+\sin\theta} = \frac{1-\sin\theta}{\cos\theta}$
Q12	Prove that: $\frac{\sin A - 2\sin^3 A}{2\cos^3 A - \cos A} = \tan A$
Q13	Prove that: $\sqrt{\frac{\sec\theta-1}{\sec\theta+1}} + \sqrt{\frac{\sec\theta+1}{\sec\theta-1}} = 2\text{cosec}\,\theta$.
Q14	Prove that $(\sin\theta + \text{cosec}\,\theta)^2 + (\cos\theta + \sec\theta)^2 = 7 + \tan^2\theta + \cot^2\theta$.
Q15	Prove that: $\sqrt{\frac{1+\sin\theta}{1-\sin\theta}} + \sqrt{\frac{1-\sin\theta}{1+\sin\theta}} = 2\sec\theta$
Q16	Prove that $\sec^4\theta - \sec^2\theta = \tan^4\theta + \tan^2\theta$.
Q17	Prove that $\frac{\cot\theta - 1 + \text{cosec}\,\theta}{\cot\theta + 1 - \text{cosec}\,\theta} = \frac{1}{\text{cosec}\,\theta - \cot\theta}$.
Q18	Prove that $\frac{1+\cos A}{1-\cos A} = (\cot A - \text{cosec}\,A)^2$.

Q19	Prove that: $(\operatorname{cosec} A - \sin A)(\sec A - \cos A) = \frac{1}{\tan A + \cot A}$.
Q20	Prove that: $\sqrt{\frac{\operatorname{cosec} A - 1}{\operatorname{cosec} A + 1}} + \sqrt{\frac{\operatorname{cosec} A + 1}{\operatorname{cosec} A - 1}} = 2 \sec A.$
Q21	The angle of elevation of the top of a vertical tower from a point on the ground is 60°. From another point 10 m vertically above the first, its angle of elevation is 30°. Find the height of the tower.
Q22	The shadow of a tower standing on a level ground is found to be 30 m longer when the sun's altitude is 30° than when it is 60°. Find the height of the tower.
Q23	From the top of a tower 100 m high, a man observes two cars on the opposite sides of the tower with angles of depression 30° and 45° respectively. Find the distance between the cars. $[Use\ \sqrt{3} = 1.73]$
Q24	A pole of length 10 m casts a shadow 2 m long on the ground. At the same time a tower casts a shadow of length 50 m on the ground, then find the height of the tower.
Q25	Two poles of equal heights are standing opposite to each other on either side of the road, which is 100 m wide. From a point between them on the road, the angles of elevation of the top of the poles are 60° and 30°, respectively. Find the height of the poles.
Q26	The angles of depression of the top and bottom of a tower as seen from the top of a $60\sqrt{3}$ m high cliff are 45° and 60° respectively. Find the height of the tower.
Q27	The angle of elevation of an aeroplane from a point A on the ground is 60°. After a flight of 30 seconds, the angle of elevation changes to 30°. If the plane is flying at a constant height of $3600\sqrt{3}$ m, find the speed, in km/hour, of the plane.
Q28	As observed from the top of a 60 m high lighthouse from the sea-level, the angles of depression of two ships are 30° and 45°. If one ship is exactly behind the other on the same side of the lighthouse, find the distance between the two ships. $[Use\ \sqrt{3} = 1.732]$
Q29	The angle of elevation of the top of a building from the foot of the tower is 30° and the angle of elevation of the top of the tower from the foot of the building is 60°. If the tower is 60 m high, find the height of the building.
Q30	An aeroplane is flying at a height of 300 m above the ground. Flying at this height, the angles of depression from the aeroplane of two points on both banks of a river in opposite directions are 45° and 60° respectively. Find the width of the river. $[Use\ \sqrt{3} = 1.732]$
Q31	In figure, a circle touches all the four sides of a quadrilateral ABCD where sidesAB = 6 cm, BC = 7 cm and CD = 4 cm. Find the length of side AD.

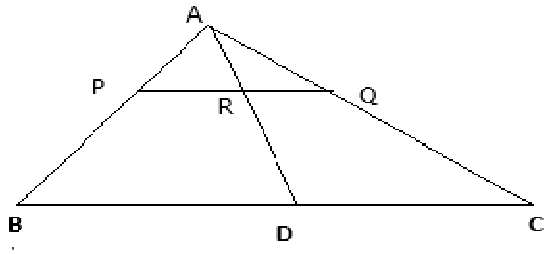
	
Q32	Prove that the lengths of tangents drawn from an external point to a circle are equal.
Q33	In figure, CP and CQ are tangents to a circle with centre O. ARB is another tangent touching the circle at R. if CP = 11 cm and BC = 7 cm then find the length of BR. 
Q34	If quadrilateral ABCD is circumscribing a circle, then prove that AB + CD = AD + BC.
Q35	A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 13 cm. Find the length PQ.
Q36	In figure, AB and AC are tangents to the circle with centre O such that $\angle BAC = 40°$. Then find the$\angle BCO$. 
Q37	In figure, a circle is inscribed in a traingle PQR with PQ = 10 cm, QR = 8 cm and PR = 12 cm. Find the lengths QM, RN and PL. 
Q38	From a point Q, 13 cm away from the centre of a circle, the length of tangent PQ to the circle is 12 cm.Find the radius of the circle (in cm) .

Q39	In figure, a quadrilateral ABCD is drawn to circumscribe a circle. Prove that $AB + CD = AD + BC$. 
Q40	In figure, QR is a common tangent to the given circles, touching externally at the point T. The tangent T meets QR at P. If PT = 3.8 cm, then find the length of QR (in cm). 
Q41	Determine the length of an altitude of an equilateral triangle of side $2a$ cm.
Q42	Use the Pythagoras theorem to prove the following: ABC is an isosceles right triangle, right angled at C. Prove that$AB^2 = 2AC^2$
Q43	The perimeters of two similar triangles ABC and PQR are respectively 32 cm and 24 cm. If PQ = 12 cm. Find AB.
Q44	In Δ ABC, $DE \parallel BC$ and $\frac{AD}{DB} = \frac{3}{5}$, if (i) AC = 5.6 cm, find AE. (ii) AC = 4.8 cm, find AE.
Q45	In the figure, AB is parallel to CD. If $OA = 3x - 19$, $OB = x - 4$, $OC = x - 3$ and OD = 4, determine x. 
Q46	In figure, $\angle ACB = 90°$, $CD \perp AB$, prove that $CD^2 = BD.AD$. 

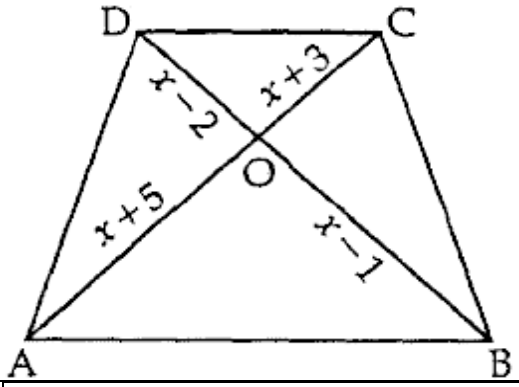
Q47	D is any point on the side BC of a ΔABC such that $\angle ADC = \angle BAC$. Prove that $CA^2 = BC.CD$.
Q48	The perimeters of two similar triangles are 30 cm and 20 cm respectively. If one side of the first triangle is 12 cm, find the corresponding side of the second triangle.
Q49	In figure, $DE \parallel BC$ and BD = CE. Prove that ΔABC is an isoceles triangle. 
Q50	In figure, $PQ \parallel AB$ and $PR \parallel AC$. Prove that $QR \parallel BC$. 
Q51	The lengths of the diagonals of a rhombus are 30 cm and 40 cm. Find the side of the rhombus.
Q52	If the diagonals of a quadrilateral divided each other proportionally, prove that it is a trapezium.
Q53	In figure, P and Q are points on the sides AB and AC respectively of ΔABC such that $AP = 3.5\ cm$, $PB = 7\ cm$, $AQ = 3\ cm$ and $QC = 6\ cm$. If $PQ = 4.5\ cm$, find BC. 
Q54	In figure, ΔABC is right angled at C and DE $\perp$ AB. Prove that $\Delta ABC \sim \Delta ADE$ and hence find the lengths of AE and DE.



Q55 Prove that the median AD drawn from A on BC bisects PQ if PQ // BC.



Q56 In the given figure, if $AB \parallel DC$, find the value of x.

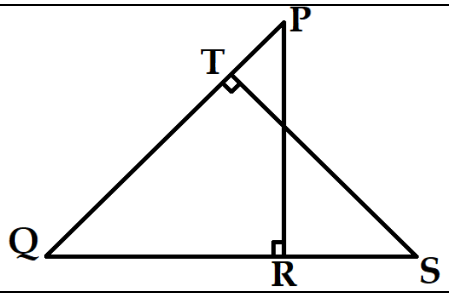
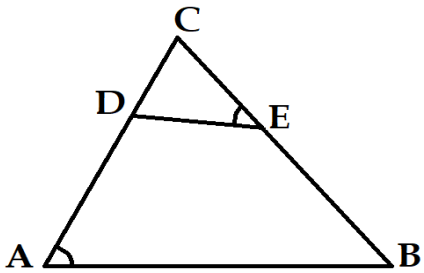


Q57 ΔABC is such that AB = 3 cm, BC = 2 cm, CA = 2.5 cm. If ΔABC~ΔDEF and EF=4cm, then perimeter of ΔDEF is

(a) 7.5 cm (b) 15cm (c) 22.5 cm (d) 30 cm

Q58 In a ΔABC, P and Q are points on sides AB and AC respectively, such that $PQ \parallel BC$. If AP = 2.4 cm, AQ = 2 cm, QC = 3 cm and BC = 6 cm, find AB and PQ.

Q59 In the figure, PQR and QST are two right triangles, right-angled at R and T respectively. Prove that $QR \times QS = QP \times QT$.

	
Q60	In figure, if $\angle CAB = \angle CED$, then prove that $AB \times DC = ED \times BC$. 
Q61	Find the values of k so that $(x-1)$ is a factor of $k^2x^2 - 2kx - 3$.
Q62	If $(x+a)$ is a factor of $2x^2 + 2ax + 5x + 10$, find a.
Q63	For what value of k, (-4) is a zero of the polynomial$x^2 - x - (2k + 2)$?
Q64	Write the polynomial, the product and sum of whose zeroes are $-\frac{9}{2}$ and $-\frac{3}{2}$ respectively.
Q65	If 1 is a zero of the polynomial$p(x) = ax^2 - 3(a-1)x - 1$, then find the value of a .
Q66	If α and β are the zeroes of a polynomial, such that $\alpha + \beta = 6$ and $\alpha\beta = 4$, then write the polynomial.
Q67	Show that $\frac{1}{2}$ and $\frac{-3}{2}$ are the zeroes of the polynomial $4x^2 + 4x - 3$ and verify the relationship between zeroes and coefficients of polynomial.
Q68	If α and β are the zeroes of the quadratic polynomial $p(x) = x^2 + 2x - 35$, then find the value of $\alpha^2 + \beta^2$.
Q69	If the product of zeroes of the polynomial $ax^2 - 6x - 6$ is 4, find the value of a. find the sum of zeroes of the polynomial.
Q70	If α and β are the zeroes of the quadratic polynomial such that $\alpha + \beta = 24$ and $\alpha - \beta = 8$, find a quadratic polynomial having α and β as its zeroes.
Q71	Solve for x and y. $2x - y = 4;\ 3y - x = 3$
Q72	Solve for x and y: $47x + 31y = 63; 31x + 47y = 15$
Q73	Solve for x and y: $31x + 29y = 33;\ 29x + 31y = 27$
Q74	Find the value of k so that the following system of equations has no solution: $3x - y - 5 = 0;\ 6x - 2y - k = 0.$
Q75	Find the value(s) of k for which the pair of linear equations $kx + 3y = k - 2$

	and $12x + y = k$ has no solution.
Q76	Find the value of k for which the following pair of linear equations have infinitely many solutions: $2x + 3y = 7; \quad (k-1)x + (k+2)y = 3k.$
Q77	For what value of p will the following pair of linear equations have infinitely many solutions?$(p-3)x + 3y = p;\ px + py = 12.$
Q78	If the system os equations $6x + 2y = 3$ and $kx + y = 2$ has a unique solution, find the value of k.
Q79	Determine the value of m and n so that the following pair of linear equations have infinitely many solutions? $(2m-1)x + 3y = 5;\ 3x + (n-1)y = 2.$
Q80	Places A and B are 80 km apart from each other on a highway. A car starts from A and another from B at the same time. If they move in same direction they meet in 8 hrs and if they move in opposite directions they meet in 1 hr 20 minutes. Find speeds of the cars.
Q81	The ages of two girls are in the ratio 5 : 7. Eight years ago, their ages were in the ratio 7 : 13. Find their present ages.
Q82	The sum of the digits of a two-digit number is 12. The number obtained by interchanging the two digits exceeds the given number by 18. Find the number.
Q83	The sum of numerator and denominator of a fraction is 3 less than twice the denominator. If each of the numerator and denominator is decreased by 1, the fraction becomes $\frac{1}{2}$. Find the fraction.
Q84	The sum of the numerator and the denominator of a fraction is 4 more than twice the numerator. If 3 is added to each of the numerator and denominator, their ratio becomes 2 : 3. Find the fraction.
Q85	2 tables and 3 chairs together cost Rs. 3500 whereas 3 tables and 2 chairs together cost Rs. 4000. Find the cost of a table and a chair.
Q86	A two-digit number is such that the product of its digits is 15. If 18 is added to the number, the digits interchange their places, find the number.
Q87	The sum of two numbers a and b is 15, and the sum of their reciprocals is $\frac{3}{10}$. Find the numbers a and b.
Q88	A passenger train takes 3 hours less for a journey of 360 km, if its speed is increased by 10 km/h. What is the usual speed?
Q89	The sum of the squares of two consecutive odd numbers is 394. Find the integers.
Q90	Solve for x: $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}; a \neq 0, b \neq 0, x \neq 0.$
Q91	Find the discriminant of the quadratic equation: $3\sqrt{3}x^2 + 10x + \sqrt{3} = 0$
Q92	Write the nature of roots of quadratic equation $4x^2 + 4\sqrt{3}x + 3 = 0.$
Q93	For what value of k, are the roots of the quadratic equation $kx(3x-10) + 25 =$

	0 equal?
Q94	For what values of k, are the roots of the quadratic equation $(k-5)x^2 + 2(k-5)x + 2 = 0$ equal?
Q95	Solve for x: $2\sqrt{3}x^2 - 5x + \sqrt{3} = 0$.
Q96	For what values of p, are the roots of the quadratic equation $(p+3)x^2 + 2(p+3)x + 4 = 0$ equal?
Q97	Find the value of p, for which one root of the quadratic equation $px^2 - 14x + 8 = 0$ is 6 times the other.
Q98	The diagonal of a rectangular field is 16 metres more than the shorter side. If the longer side is 14 metres more than the shorter side, then find the lengths of the sides of the field.
Q99	Sum of the areas of two squares is 400 cm^2. If the difference of their perimeters is 16 cm, find the sides of the squares.
Q100	The numerator of a fraction is 3 less than its denominator. If 1 is added to the denominator, the fraction is decreased by $\frac{1}{15}$. Find the fraction.