WANDOOR GANITHAM - S S L C LAST BELL 2021

4105E **FOCUS AREA - SECOND DEGREE EQUATIONS**

No		Score
1	x is a natural number . a) What number should be added to $x^2 + 16x$ to get a perfect square ? b) If $x^2 + 16x = 36$, find the natural number represented by x ?	4
2	x is a natural number . a) What number should be added to $x^2 - 30x$ to get a perfect square ? b) If $x^2 - 30x = 64$, find the natural number represented by x ?	4
3	When each side of a square was increased by 8 metres , the area became 324 square metres . a) Write a second degree equation by taking the side of the original square as x . b) What was the length of a side of the original square ?	3
4	When each side of a square was decreased by 5 metres , the area became 225 square metres . a) Write a second degree equation by taking the side of the original square as x b) What was the length of a side of the original square ?	3
5	1 added to the product of two consecutive even numbers gives 289 . a) Write a second degree equation by taking the smaller number as x b) Find the numbers ?	4

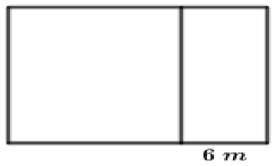
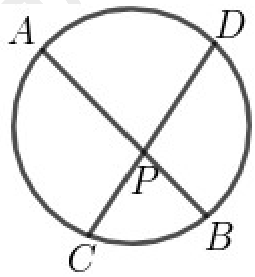
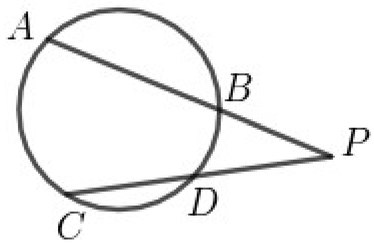
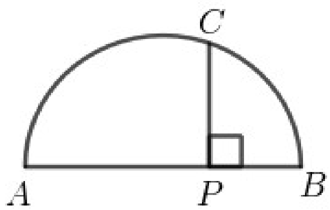
6	**1 added to the product of two consecutive odd numbers gives 400 .** **a) Write down a second degree equation by taking the smallerd number as x** **b) Find the numbers ?**	**4**
7	**9 added to the product of two consecutive multiples of 6 gives 441 .** **a) Write a second degree equation by taking the smaller multiple as x** **b) Find the numbers ?**	
8	**The product of two consecutive multiples of 4 is 672 .** **a) Write a second degree equation by taking the smaller multiple as x** **b) Find the numbers ?**	**5**
9	**Consider the arithmetic sequence 6 , 7 , 8 , ...** **a) What is its common difference ?** **b) What is its algebraic form ?** **c) Find the position of the term of this sequence whose square is 900 ?**	**5**
10	**Consider the arithmetic sequence 3 , 5 , 7 , ...** **a) What is its common difference ?** **b) What is its algebraic form ?** **c) Find the position of the term of this sequence whose square is 625 ?**	**5**
11	**The product of two consecutive terms of the arithmetic sequence 1 , 7 , 13 , ...** **is 1591 .** **a) What is its common difference ?** **b)Write a second degree equation by taking any one of the consecutive term as x** **c) Find the terms ?**	**5**
12	**The sum of the square of a number and 8 times that number is 240 .** **a) Write a second degree equation by taking the number as x** **b) Find the number ?**	**5**

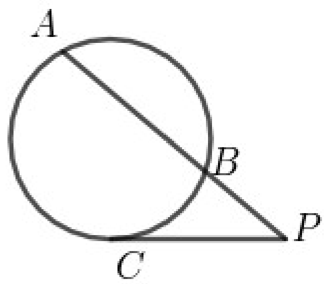
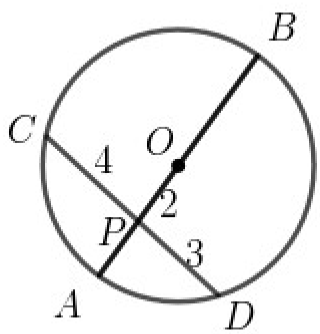
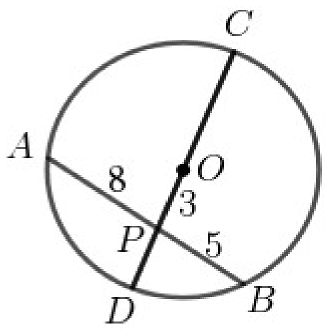
13	12 times a number subtracted from the square of that number gives 864 . a) Write a second degree equation by taking the number as x b) Find the number ?	5
14	The product of a number and 14 more than that number is 351 . a) Write a second degree equation by taking the number as x b) Find the number ?	5
15	The product of a number and 20 less than that number is 525 . a) Write a second degree equation by taking the number as x b) Find the number ?	5
16	The longer side of a rectangle is 6 centimetres more than its shorter side . The area of the rectangle is 247 square centimetres . a) Write a second degree equation by taking the shorter side as x b) Compute the lengths of the sides ?	5
17	The shorter side of a rectangle is 2 centimetres less than its longer side . The area of the rectangle is 195 square centimetres . a) Write a second degree equation by taking the longer side as x b) Compute the lengths of the sides ?	5
18	The perimeter of a rectangle is 44 centimetres and its area is 117 square centimetres . a) What is the sum of the lengths of the longer and the shorter sides of the rectangle ? b)Write a second degree equation by taking the length of the longer side as $11+x$ c) Compute the lengths of the sides ?	5

19	**The perimeter of a rectangle is 48 centimetres and its area is 135 square centi - metres .** **a) What is the sum of the lengths of the longer and the shorter sides of the rectangle ?** **b)Write a second degree equation by taking the length of the shorter side as 12 - x** **c) Compute the lengths of the sides ?**	**5**
20	**a) Perimeter of a rectangle is 60 centimetres . Write a pair of numbers that can be the measures of its sides ?** **b) Perimeter of a rectangle is 60 centimetres and its area 176 square centimetres Compute length of its sides ?**	**5**
21	**The longer side of a rectangle is 4 centimetres more than its shorter side .** **The diagonal of the rectangle is 20 centimetres .** **a) Write a second degree equation by taking the shorter side as x** **b) Compute the lengths of the sides ?**	**5**
22	**The shorter side of a rectangle is 14 centimetres less than its longer side .** **The diagonal of the rectangle is 26 centimetres .** **a) Write a second degree equation by taking the longer side as x** **b) Compute lengths of the sides ?**	**5**
23	**The perimeter of a rectangle is 28 centimetres and its diagonal is 10 centimetres .** **a) What is the sum of the lengths of the longer and the shorter sides of the rectangle ?** **b) Write down a second degree equation by taking the length of the longer side as 7 + x** **c) Compute the lengths of the sides ?**	**5**

24	**The perimeter of a rectangle is 56 centimetres and its diagonal is 20 centimetres .** **a) What is the sum of the lengths of the longer and the shorter sides of the rectangle ?** **b) Write down a second degree equation by taking the length of the shorter side as $14 - x$** **c) Compute the lengths of the sides ?**	**5**
25	**The longer side of a rectangle is 2 centimetres more than its shorter side .** **The diagonal of the rectangle is 4 centimetres more than its shorter side .** **a) Write a second degree equation by taking the shorter side as x** **b) Compute the lengths of the sides ?**	**5**
26	**The longer side of a rectangle is 1 centimetres less than double its shorter side .** **The diagonal of the rectangle is 1 centimetres more than double its shorter side .** **a) Write a second degree equation by taking the shorter side as x** **b) Compute the lengths of the sides ?**	**5**
27	**The longer side of a rectangle is 3 centimetres more thrice its shorter side .** **The diagonal of the rectangle is 4 centimetres more than thrice its shorter side .** **a) Write a second degree equation by taking the shorter side as x** **b) Compute the lengths of the sides ?**	**5**
28	**One of the perpendicular sides of a right triangle is 4 centimetres more than the other . The hypotenuse is 8 centimetres more than the shorter side .** **a) Write a second degree equation by taking the shorter side as x** **b) Compute the lengths of the sides ?**	**5**
29	**One of the perpendicular sides of a right triangle is 2 centimetres more than double the other . The hypotenuse is 3 centimetres more than double the shorter side .**	**5**

	a) Write a second degree equation by taking the shorter side as **b) Compute the lengths of the sides ?**	
30	**A pavement of with 4 metres is built around a square shaped garden . The area of the garden with the pavement is 1600 square metres .** **a) Draw a rough figure on the basis of the given details and mark the measures ?** **b) Write a second degree equation by taking the side of the garden as x** **c) Compute the side of the garden ?**	**5**
31	**A pavement of with 2 metres is built around just inside the square shaped garden The area of the garden other than the pavement is 3600 square metres .** **a) Draw a rough figure on the basis of the given details and mark the measures ?** **b) Write a second degree equation by taking the side of the garden as x** **c) Compute the side of the garden ?**	**5**
32	**The length and breadth of a rectangular garden are 40 metres and 20 metres . There is a path of a fixed width around just outside the garden . The area of the path is 124 square centimetres .** **a) Draw a rough figure on the basis of the given details and mark the measures ?** **b) Write a second degree equation by taking the width of the path as x** **c) Compute the width of the path ?**	**5**
33	**The length and breadth of a rectangular garden are 60 metres and 40 metres . There is a path of a fixed width around just inside the garden . The area of the path is 384 square centimetres .** **a) Draw a rough figure on the basis of the given details and mark the measures ?** **b) Write a second degree equation by taking the width of the path x** **c) Compute the width of the path ?**	**5**
34	**The figure shows two parallel sides of a square extended by 6 centimetres to make a rectangle . The area of the new rectangle is 256 square centimetres .**	

	a) Write a second degree equation by taking the side of the square as x b) Compute the length of the side of the square . 	4
35	Two parallel sides of a square extended by 10 metres to make a rectangle . The are a of the new rectangle is 576 square centimetres . a) Draw a rough figure on the basis of the given details and mark the measures ? b) Write a second degree equation by taking the side of the square as x b) Compute the length of the side of the square .	4
36	In the figure two chords AB and CD intersect at P PA = 16 cm , PB = 6 cm . The length of PD is 4 cm more than that of PC .  a) PC x PD = ... b) Write down a second degree equation by taking the length of PC as x . c) Compute length of CD ?	5
37	In the figure chords AB and CD of the circles are extended to meet at P . PA = 24 cm , AB = 18 cm . The length of PC is 10 cm more than that of PD .  a) What is the length of PB ? b) PC x PD = ... c) Write down a second degree equation by taking the length of PD as x . d) Compute the length of CD ?	5
38	In the figure AB is the diameter of the semicircle . P is a point on AB . The perpendicular drawn through P to AB meets the semicircle at C . PA is 10 centimetres more than PB . PC = 12 centimetres . 	

	a) PA x PB = ... b) Write down a second degree equation by taking the length of PB as x . c) Compute the length of AB ?	5
39	In the figure chord AB of the circles is extended to meet the tangent through C at P . PC = 8 cm The length of PA is 12 cm more than that of PB .  a) PA x PB = ... b) Write down a second degree equation by taking the length of PB as x . c) What is the length of AB ?	5
40	In the figure O is the centre of the circle . Chords AB and CD are intersect at P . PC = 4 cm , PD = 3 cm , PO = 2 cm .  a) If the radius of the circle is taken as r , what is the length of PB ? b) PA x PB = ... c) What is the radius of the circle ?	5
41	In the figure O is the centre of the circle . Chords AB and CD are intersect at P . PA = 8 cm , PB = 5 cm , PO = 3 cm .  a) If the radius of the circle is taken as r , what is the length of PD ? b) PC x PD = ... c) What is the radius of the circle ?	5