SET 3

ISWK Term 1- Practice Examination

Code No.: 041 /1/3

Roll No: | | | | | | | | |

Candidates must write the code on the title page of the answer book

- **Please check that this question paper contains 10 printed pages.**
- **Please check that this question paper contains 50 questions.**
- **20 minutes time has been allotted to read this question paper. The question paper will be distributed at 9.40 am. From 09:40 am to 10:00 am, the students will read the question paper and plan a proper strategy to attempt the questions.**

MATHEMATICS (STANDARD)

Date: 02/11/2021 *Time: 90 minutes*
Max. Marks:40

Class X
Session: 2021-22, Term - 1
Mathematics STANDARD
Time Allowed: 90 minutes
Maximum Marks: 40

General Instructions:

1. The question paper contains three parts A, B and C. Each part is compulsory.
2. Section A consists of 20 questions of 1 mark each (MCQ's). Any 16 questions are to be attempted.
3. Section B consists of 20 questions of 1 mark each (MCQ's). Any 16 questions are to be attempted.
4. Section C consists of 10 questions based on two CASE STUDIES. Attempt any 8 questions.
5. There is NO NEGATIVE marking.

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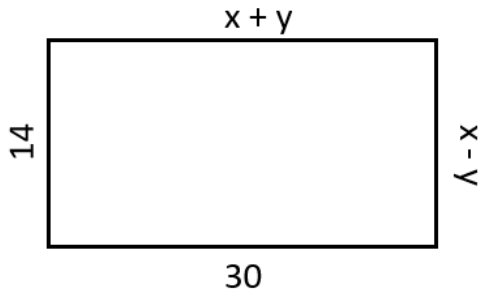
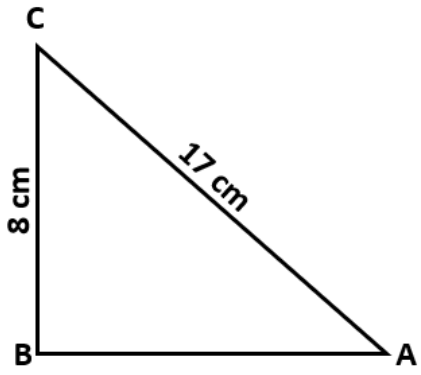
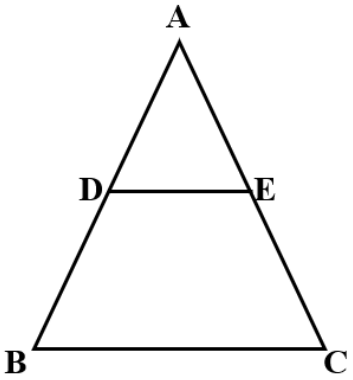
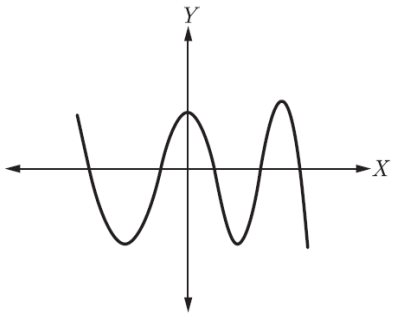
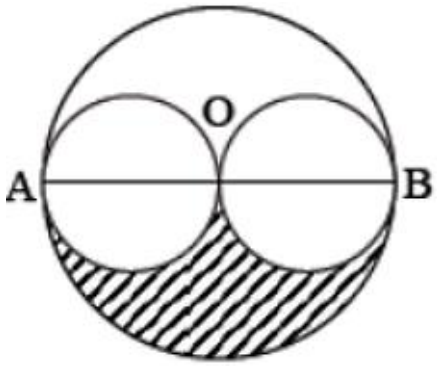
SECTION A

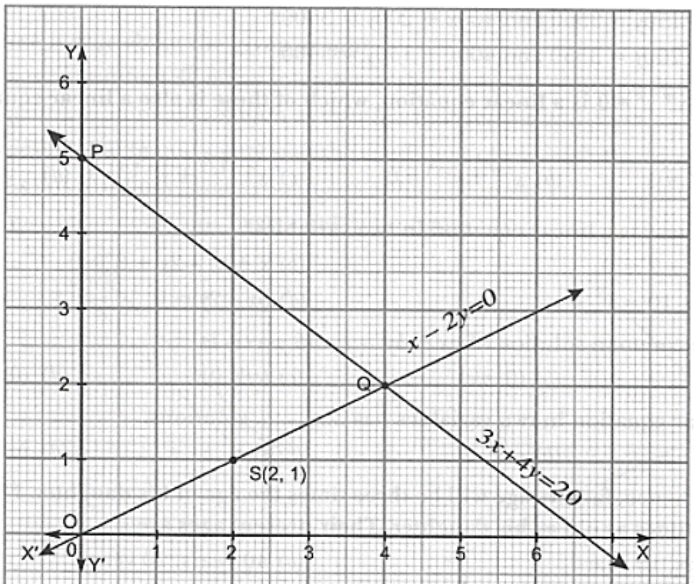
	Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted.							
Q.1.	**If HCF (a, b) = 12 and a × b = 1800, then LCM of (a, b) is:**							
	(A)	**170**	**(B)**	**180**	**(C)**	**120**	**(D)**	**150**
Q.2.	**The lines represented by the equations 5x – 4y + 8 = 0; 7x + 6y - 9 = 0 will:**							
	(A)	**intersect at a point**			**(B)**	**be coincident**		
	(C)	**be parallel**			**(D)**	**none of these**		
Q.3.	**If $a^2 = \frac{22}{25}$, then a is:**							
	(A)	**rational**			**(B)**	**irrational**		
	(C)	**whole number**			**(D)**	**integer**		
Q.4.	**If the equations kx – 2y = 3 and 3x + y = 5 represent two intersecting lines at unique point, then the value of k is:**							
	(A)	**6**			**(B)**	**all real numbers except 6**		
	(C)	**(- 6)**			**(D)**	**all real numbers except (- 6)**		
Q.5.	**The point on the Y-axis which is equidistant from (2, -5) and (-2, 9) is:**							
	(A)	**(0, 3)**	**(B)**	**(0, 2)**	**(C)**	**(0, 5)**	**(D)**	**(0, -2)**
Q.6.	**A quadratic polynomial, whose zeroes are - 4 and - 5 is:**							
	(A)	**$x^2 – 9x + 20$**			**(B)**	**$x^2 + 9x + 20$**		
	(C)	**$x^2 – 9x - 20$**			**(D)**	**$x^2 + 9x - 20$**		

Q.7.	**In the figure ABCD is a rectangle. The values of x and y respectively are:**  							
	(A)	**x=12, y =16**	**(B)**	**x=16, y =10**	**(C)**	**x= 22, y = 8**	**(D)**	**x= 15, y = 18**
Q.8.	**Cards bearing 3 to 20 are placed in a bag and mixed thoroughly. A card is taken out from the bag at random. The probability that the card drawn is an even number is:**							
	(A)	$\frac{5}{9}$	**(B)**	$\frac{4}{9}$	**(C)**	$\frac{9}{16}$	**(D)**	$\frac{1}{2}$
Q.9.	**The LCM of the smallest two-digit number and the largest multiple of 6 which is less than 50 is:**							
	(A)	**2**	**(B)**	**48**	**(C)**	**120**	**(D)**	**240**
Q.10.	**In the given figure, ΔABC is right angled at B. If AC = 17 cm and BC = 8 cm, then 15secA +8cotA is:**  							
	(A)	**23**	**(B)**	**32**	**(C)**	**120**	**(D)**	**27**
Q.11.	**If 5 sin P = 12 cos P, then the value of tan P is:**							
	(A)	$\frac{5}{12}$	**(B)**	$\frac{12}{5}$	**(C)**	**1**	**(D)**	**5**

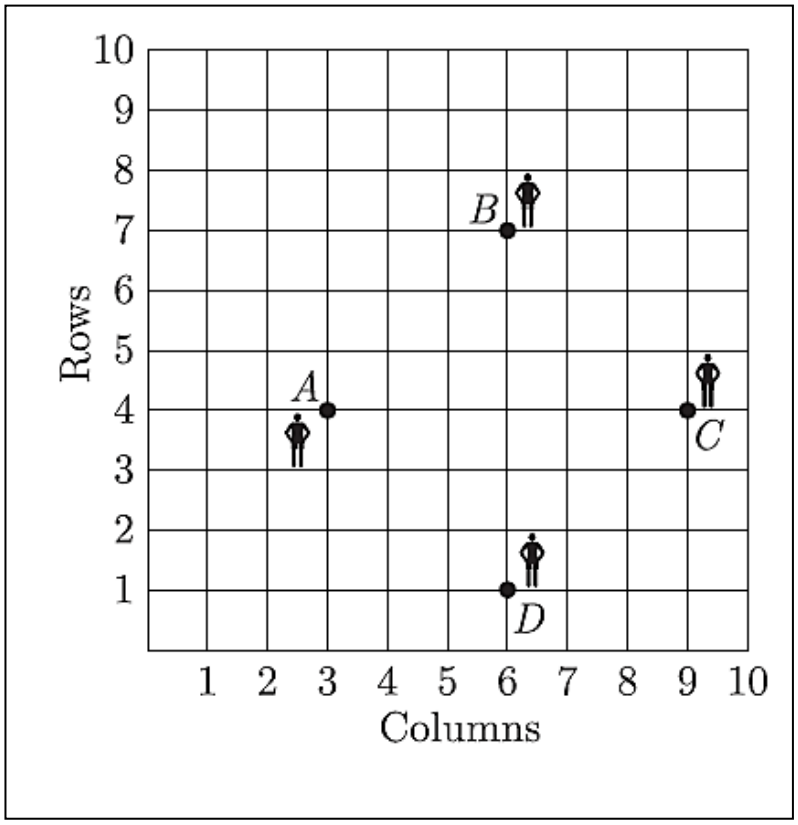
Q.12.	**If two positive integers A and B can be expressed as A = xy^3 and B = x^4y^2z; x, y being prime numbers, the HCF(A, B) is:**							
	(A)	**xy^2**	**(B)**	**x^4y^2z**	**(C)**	**x^4y^3**	**(D)**	**x^4y^3z**
Q.13	**In Fig, in ΔABC, $\frac{AD}{BD} = \frac{AE}{CE}$ and ∠ADE = 70° and ∠ACB = 50° then ∠BAC is:** 							
	(A)	**70°**	**(B)**	**50°**	**(C)**	**80°**	**(D)**	**60°**
Q.14	**Two lines are given to be intersecting. The equation of one of the lines is 2x - 3y = 7. The equation of the second line can be:**							
	(A)	**3x + 4y = 14**			**(B)**	**4x - 6y = -14**		
	(C)	**12x - 18y = 24**			**(D)**	**-12x + 18y = -42**		
Q.15	**The value of $(\sec A + \tan A)(1 - \sin A)$ is:**							
	(A)	**sec A**	**(B)**	**sin A**	**(C)**	**cosec A**	**(D)**	**cos A**
Q.16	**If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is:**							
	(A)	**10**	**(B)**	**-10**	**(C)**	**5**	**(D)**	**-5**
Q.17	**The decimal representation of $\frac{6}{1250}$ will terminate after how many places of decimal?**							
	(A)	**1**	**(B)**	**2**	**(C)**	**3**	**(D)**	**4**
Q.18	**The value(s) of k for which the pair of linear equations 3x – y – 5 = 0 and 6x - 2y + k = 0 have no solution is:**							
	(A)	**10**			**(B)**	**both 10 and (-10)**		
	(C)	**(-10)**			**(D)**	**all real values of k except (-10)**		

Q.19	**Which of the following can be the probability of an event?**							
	(A)	**-0.05**	**(B)**	**1.007**	**(C)**	$\frac{18}{23}$	**(D)**	$\frac{9}{7}$
Q.20	**The graph of y = p(x), where p(x) is a polynomial in variable x, is as follows. The number of zeroes of p(x) is:** 							
	(A)	**5**	**(B)**	**4**	**(C)**	**3**	**(D)**	**2**
	SECTION B							
	Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted.							
Q.21	$\frac{2\tan x(\sec^2 x-1)}{\cos^3 x}$ =							
	(A)	**2 $\tan^3 x$ cosec x**			**(B)**	**2 $\tan^3 x$ $\sec^3 x$**		
	(C)	**2 $\tan^3 x$ $\text{cosec}^3 x$**			**(D)**	**2 $\cot^3 x$ $\sec^3 x$**		
Q.22	**In the figure, the larger circle with radius 4 cm is touched internally by two smaller circles which also touch each other externally at the centre O of the larger circle. The area of the shaded portion is:** 							
	(A)	**4π sq. units**	**(B)**	**7π sq. units**	**(C)**	**12π sq. units**	**(D)**	**16π sq. units**

Q.23	**The lengths of the diagonals of a rhombus are 16 cm and 12 cm. Then, the length of the side of the rhombus is:**							
	(A)	**9 cm**	**(B)**	**10 cm**	**(C)**	**8 cm**	**(D)**	**20 cm**
Q.24	**The area of sector of a circle with radius 14 cm and central angle 45° is:**							
	(A)	**77cm^2**	**(B)**	**11 cm^2**	**(C)**	**66 cm^2**	**(D)**	**154 cm^2**
Q.25	**If tan (3x + 30°) = 1, then the value of x is:**							
	(A)	**5**	**(B)**	**15**	**(C)**	**45**	**(D)**	**60**
Q.26	**The coordinates of a point A, where AB is diameter of the circle whose center is (2, - 3) and B is the point (3, 4) is:**							
	(A)	$\left(\frac{5}{2}, \frac{1}{2}\right)$	**(B)**	**(1, -10)**	**(C)**	$\left(\frac{1}{2}, \frac{5}{2}\right)$	**(D)**	**(-10, 1)**
Q.27	**If the area of a circle is 154 cm^2, then its circumference is:**							
	(A)	**11 cm**	**(B)**	**22 cm**	**(C)**	**44 cm**	**(D)**	**55 cm**
Q.28	**A pendulum swings through an angle of 30° and describes an arc 8.8 cm in length. The length of the pendulum is:(Take $\pi = \frac{22}{7}$)**							
	(A)	**16 cm**	**(B)**	**16.8 cm**	**(C)**	**16.4 cm**	**(D)**	**16.2 cm**
Q.29	**The two legs AB and BC of right triangle ABC right angled at B are in a ratio 1:3. Then the value of sin C is:**							
	(A)	$\frac{1}{\sqrt{10}}$	**(B)**	$\frac{3}{\sqrt{10}}$	**(C)**	$\frac{1}{3}$	**(D)**	$\frac{1}{2}$
Q.30	**If α and $\frac{1}{\alpha}$ are zeroes of 4x^2 – 17x + k – 4, the value of k is:**							
	(A)	**1**	**(B)**	**3**	**(C)**	**5**	**(D)**	**8**
Q.31	**If α and β are the zeroes of the polynomial $2y^2$ + 7y + 5, the value of $\alpha + \beta + \alpha\beta$ is:**							
	(A)	$\frac{35}{4}$	**(B)**	**-1**	**(C)**	$\frac{-35}{4}$	**(D)**	**6**

Q.32	**If x = a cos θ and y = b sin θ, the value of $b^2x^2 + a^2y^2$ is:**							
	(A)	**$a^2 + b^2$**	**(B)**	**$\frac{a^2}{b^2}$**	**(C)**	**a^2b^2**	**(D)**	**$a^2 - b^2$**
Q.33	**Solve the following pair of equations:** $\frac{2}{x} + \frac{3}{y} = 13; \frac{5}{x} - \frac{4}{y} = -2$							
	(A)	**x= 2, y =3**	**(B)**	**x =3, y = 2**	**(C)**	**$x = \frac{1}{2}, y = \frac{1}{3}$**	**(D)**	**$x = \frac{1}{3}, y = \frac{1}{2}$**
Q.34	**The coordinates of the vertices of the triangle formed between the lines and y-axis from the graph is:** 							
	(A)	**(0,5), (0,0) and (6.5,0)**			**(B)**	**(4,2), (5,0) and (6.5,0)**		
	(C)	**(4,2), (0,0) and (0,5)**			**(D)**	**(0,0), (4,2) and (6.5,0)**		
Q.35	**If $\Delta ABC \sim \Delta DEF$, BC = 3 EF and area ($\Delta ABC$) = 117 cm^2, then area (ΔDEF) is:**							
	(A)	**23 cm^2**	**(B)**	**27 cm^2**	**(C)**	**13 cm^2**	**(D)**	**39 cm^2**
Q.36	**A card is selected at random from a well shuffled deck of 52 playing cards. The probability of it being a face card is:**							
	(A)	**$\frac{3}{13}$**	**(B)**	**$\frac{4}{13}$**	**(C)**	**$\frac{6}{13}$**	**(D)**	**$\frac{9}{13}$**

Q.37	**Rahul has 40 cm long red and 84 cm long blue ribbon. He cuts each ribbon into pieces such that all pieces are of equal length. The length of each piece is:**							
	(A)	**2cm**	**(B)**	**4cm**	**(C)**	**6cm**	**(D)**	**8cm**
Q.38	**The value of (sin30° + cos30°) – (sin60° + cos60°) is:**							
	(A)	**-1**	**(B)**	**0**	**(C)**	**1**	**(D)**	**2**
Q.39	**The ratio in which X-axis divides the line segment joining A(2, -3) and B(5, 6) is:**							
	(A)	**3:5**	**(B)**	**1:2**	**(C)**	**2:1**	**(D)**	**2:3**
Q.40	**The sum of the digits of a two-digit number is 9. If 27 is added to it the digits of the number get reversed. The original number is:**							
	(A)	**45**	**(B)**	**54**	**(C)**	**63**	**(D)**	**36**
SECTION C								
	Case study-based questions: **Section C consists of 10 questions of 1 mark each. Any 8 questions are to be attempted.**							
	Q41-Q45 are based on Case Study -1 **Case Study -1** **In a classroom, 4 friends of class 10 are seated at the points A, B, C , and D as shown in Figure. Two of their classmates Champa and Chameli observes the positions of these four friends for few minutes. They made a chart for the positions of A, B, C and D which is given below.**							

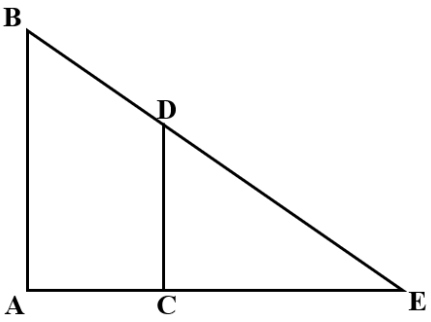


Q.41	**The coordinate of C is:**							
	(A)	**(4,9)**	**(B)**	**(3,4)**	**(C)**	**(9,0)**	**(D)**	**(9,4)**
Q.42	**The distance of point B from origin is:**							
	(A)	$\sqrt{95}$	**(B)**	$\sqrt{85}$	**(C)**	$\sqrt{13}$	**(D)**	$3\sqrt{5}$
Q.43	**The distance between A and B is:**							
	(A)	$2\sqrt{3}$	**(B)**	$2\sqrt{5}$	**(C)**	$3\sqrt{2}$	**(D)**	$\sqrt{5}$
Q.44	**The distance between B and D is:**							
	(A)	**6**	**(B)**	$3\sqrt{6}$	**(C)**	**36**	**(D)**	$2\sqrt{35}$
Q.45	**The figure formed by joining A, B, C and D in order is:**							
	(A)	**trapezium**			**(B)**	**parallelogram**		
	(C)	**rectangle**			**(D)**	**square**		

Q46-Q50 are based on Case Study -2

Case Study -2

Two trees are standing parallel to each other. The bigger tree 8 m high, cast a shadow of 6m.



Q.46 **If AB and CD are the 2 trees and AE is the shadow of the longer tree, then:**

	(A)	$\Delta AEB \sim \Delta CED$	**(B)**	$\Delta ABE \sim \Delta CED$
	(C)	$\Delta AEB \sim \Delta DEC$	**(D)**	$\Delta BEA \sim \Delta ECD$

Q.47 **Since AB || CD, by Basic Proportionality Theorem we have:**

	(A)	$\frac{AE}{CE} = \frac{BD}{DE}$	**(B)**	$\frac{AC}{AE} = \frac{DE}{BE}$	**(C)**	$\frac{AE}{CE} = \frac{AB}{CD}$	**(D)**	$\frac{AE}{CE} = \frac{BE}{DE}$

Q.48 **If the ratio of the height of the two trees is 3: 1, then the shadow of the smaller tree is:**

	(A)	**2 m**	**(B)**	**6 m**	**(C)**	$\frac{8}{3}$ **m**	**(D)**	**8 m**

Q.49 **The distance of the point B from E is:**

	(A)	**10 m**	**(B)**	**8 m**	**(C)**	**18 m**	**(D)**	$\frac{10}{3}$ **m**

Q.50 **If $\Delta ABC \sim \Delta PQR$, $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$, PQ = 10 cm, then AB is:**

	(A)	**4 cm**	**(B)**	**2 cm**	**(C)**	**5 cm**	**(D)**	$\frac{8}{5}$ **cm**