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education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICS P2

COMMON TEST

JUNE 2024

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MARKS: 50

TIME:1 Hour

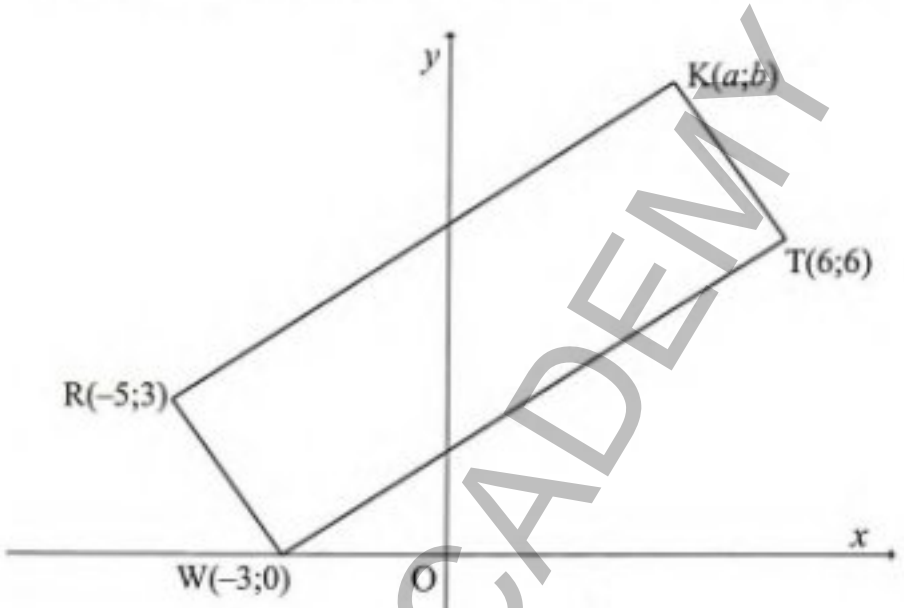
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QUESTION 1

In the diagram R(−5;3), W(−3;0), T(6;6) and K(a;b) are the vertices of quadrilateral RWTK.



1.1 Determine the coordinates of M the midpoint of line RT. (3)

1.2 Calculate the gradient of the line WT. (3)

1.3 Prove that RW is perpendicular to WT. (3)

1.4 If RWTK is a parallelogram, determine the values of a and b. (4)

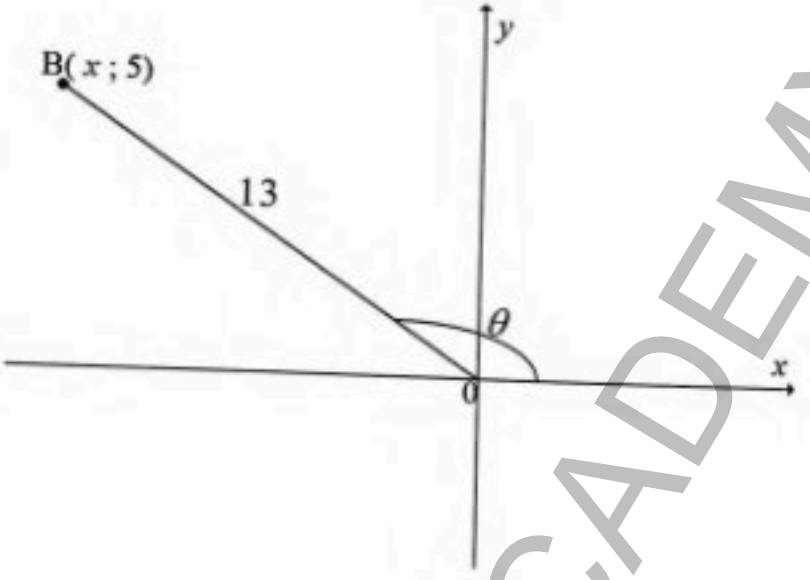
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QUESTION 2

2.1 B $(x\ ;5)$ is a point that lies on the Cartesian plane. It is given that OB=13 units and $B\hat{O}X=\theta$



Using the diagram and **without the use of a calculator**, determine:

2.1.1 the value of x (2)

2.1.2 $\cos\theta$ (1)

2.1.3 $\dfrac{12\sin\theta}{\cos\theta}$ (2)

2.2 Given that $x=20°$ and $y=21°$, calculate the value of the following (correct to TWO decimal places).

2.2.1 $\cos 2y$ (1)

2.2.2 $\sin(x+y)$ (2)

2.2.3 $\sec x$ (2)

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QUESTION 3

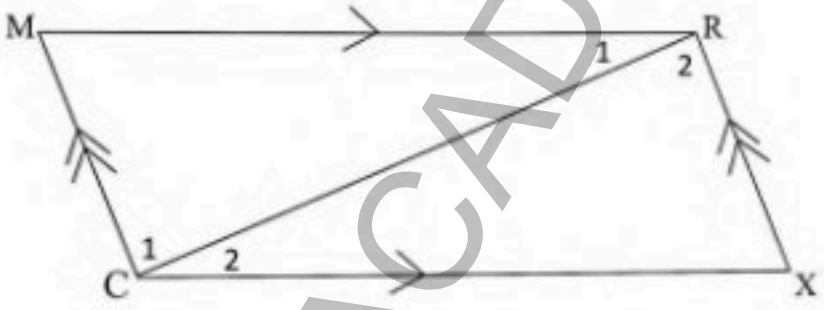
3.1 **Without the use of a calculator**, calculate the value of:
$\sin^2 45° - \cos 60° + \tan 10° \cot 10°$ (4)

3.2 Solve for x, correct to ONE decimal place where $0° \leq x \leq 90°$, if: $\frac{1}{3\sin x} = 2$ (3)

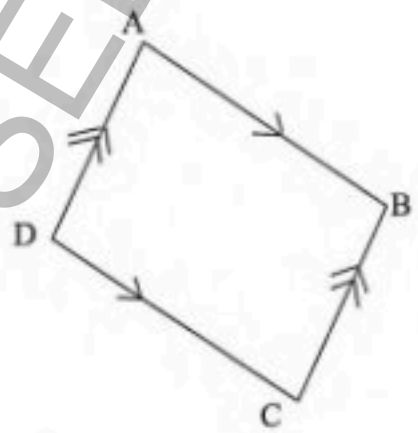
[7]

QUESTION 4

4.1 Use the diagram below to prove that the opposite sides of a parallelogram are equal (4)



4.2 In the diagram below ABCD is a parallelogram with $\hat{A} = 5x + 5°$ and $\hat{C} = 8x - 16°$.



4.2.1 Calculate the value of x. (3)

4.2.2 Determine the size of $\hat{B}$. (4)

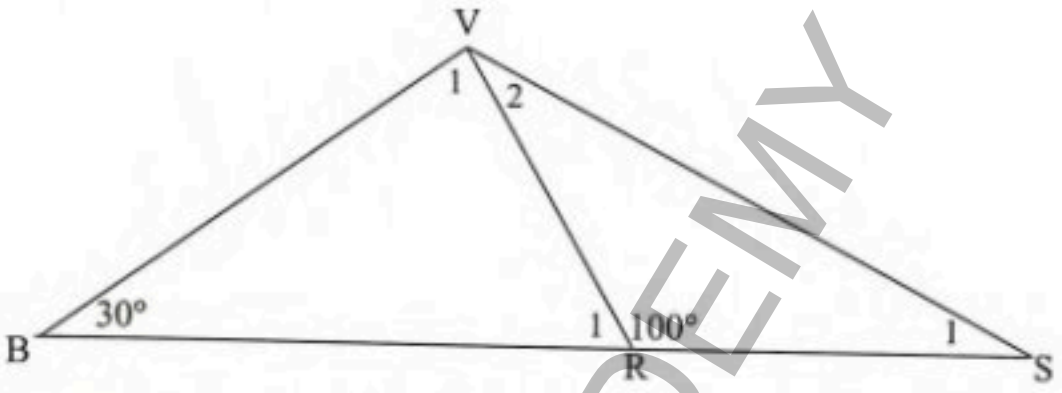
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QUESTION 5

5.1 In the diagram , $\hat{B}=30°$ and $V\hat{R}S=100°$.

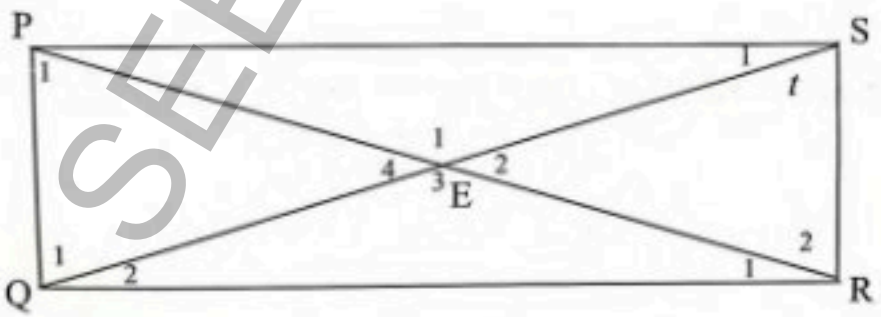


Determine ,with reasons the size of the following angles.

5.1.1 $\hat{V}_1$ (2)

5.1.2 $\hat{S}_1$, if VR = RS. (2)

5.2 In the diagram below PQRS is a rectangle with E being the point of intersection of the diagonals. $Q\hat{S}R=t$.



Calculate the size of $\hat{E}_4$ in terms of t. (4)

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TOTAL: [50]

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