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## MATHS

## BOOKS - VIDHYASANGAM - RAO'S

 ACADEMY MATHS (KANNADA
## ENGLISH)

## QUADRILATERALS

1. The angles of quadrilateral are in the ratio 3
: 5 : 9 : 13. Find all the angles of the quadrilateral.

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2. If the diagonals of a parallelogram are equal, show that it is a rectangle.

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3. Show that if the diagonals of a quadrilateral
bisect each other at right angles, then it is a rhombus.

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4. Show that the diagonals of a square are equal and bisect each other at right angles.

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## 5. Show that if the diagonals of a quadrilateral

 are equal and bisect each other at right angles, then it is a square.

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6. Diagonal $A C$ of a parallelogram $A B C D$ bisects
A. Show that
it bisects C also


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7. Diagonal $A C$ of a parallelogram $A B C D$ bisects
A. Show that
$A B C D$ is a rhombus.


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8. $A B C D$ is a rhombus. Show that diagonal $A C$ bisects $A$ as well as $C$ and diagonal BD bisects $B$ as well as $D$.

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9. $A B C D$ is a rectangle in which diagonal $A C$ bisects A as well as C . Show that :
$A B C D$ is a square


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10. In $\triangle A B C$ and $\triangle D E F, \mathrm{AB}=\mathrm{DE}, \mathrm{AB} \| \mathrm{DE}$, $\mathrm{BC}=\mathrm{EF}$ and $B C|E| F$. Vertices $\mathrm{A}, \mathrm{B}$ and C are joined to vertices D, E and F respectively. Show that

Quadrilateral ABED is a parallelogram


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11. In $\triangle A B C$ and $\triangle D E F, \mathrm{AB}=\mathrm{DE}, \mathrm{AB} \| \mathrm{DE}$, $\mathrm{BC}=\mathrm{EF}$ and $B C|E| F$. Vertices $\mathrm{A}, \mathrm{B}$ and C are joined to vertices D, E and F respectively. Show that

Quadrilateral BEFC is a parallelogram

12. In $\triangle A B C$ and $\triangle D E F, \mathrm{AB}=\mathrm{DE}, \mathrm{AB} \| \mathrm{DE}$, $\mathrm{BC}=\mathrm{EF}$ and $B C|E| F$. Vertices $\mathrm{A}, \mathrm{B}$ and C are joined to vertices D, E and F respectively. Show that
$A D|C| F$ and $\mathrm{AD}=\mathrm{CF}$


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13. In $\triangle A B C$ and $\triangle D E F, \mathrm{AB}=\mathrm{DE}, \mathrm{AB} \| \mathrm{DE}$, $\mathrm{BC}=\mathrm{EF}$ and $B C|E| F$. Vertices $\mathrm{A}, \mathrm{B}$ and C are joined to vertices D, E and F respectively. Show that quadrilateral ACFD is a parallelogram


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14. In $\triangle A B C$ and $\triangle D E F, \mathrm{AB}=\mathrm{DE}, \mathrm{AB} \| \mathrm{DE}$, $\mathrm{BC}=\mathrm{EF}$ and $B C|E| F$. Vertices $\mathrm{A}, \mathrm{B}$ and C are joined to vertices D, E and F respectively. Show that
$A C=D F$


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15. In $\triangle A B C$ and $\triangle D E F, \mathrm{AB}=\mathrm{DE}, \mathrm{AB} \| \mathrm{DE}$, $\mathrm{BC}=\mathrm{EF}$ and $B C|E| F$. Vertices $\mathrm{A}, \mathrm{B}$ and C are joined to vertices D, E and F respectively. Show that
$\triangle A B C \cong \triangle D E F$.


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16. ABCD is a trapezium in which $A B|C| D$ and
$A D=B C$. Show that
$A=B$


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17. ABCD is a trapezium in which $A B|C| D$ and
$A D=B C$. Show that
$C=D$

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18. ABCD is a trapezium in which $A B|C| D$ and
$A D=B C$. Show that
$\triangle A B C \cong \triangle B A D$


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19. ABCD is a trapezium in which $A B|C| D$ and
$A D=B C$. Show that

## diagonal $A C=$ diagonal BD



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## Exercise 72

1. $A B C D$ is a quadrilateral in which $P, Q, R$ and $S$
are mid- points of the sides $A B, B C, C D$ and $D A$.

AC is a diagonal. Show that :
$S R|A| C$ and $S R=\frac{1}{2} A C$


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2. $A B C D$ is a quadrilateral in which $P, Q, R$ and $S$
are mid- points of the sides $A B, B C, C D$ and $D A$.
AC is a diagonal. Show that :
$P Q=S R$


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3. $A B C D$ is a quadrilateral in which $P, Q, R$ and $S$
are mid- points of the sides $A B, B C, C D$ and $D A$.
AC is a diagonal. Show that :

PQRS is a parallelogram.


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4. $A B C D$ is a rectangle and $P, Q, R$ and $S$ are mid-points of the sides $A B, B C, C D$ and $D A$ respectively. Show that the quadrilateral PQRS
is a rhombus.


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5. ABCD is a trapezium in which $A B|D| C$, BD is
a diagonal and $E$ is the mid-point of AD. A line
is drawn through E parallel to $A B$ intersecting
$B C$ at $F$. Show that $F$ is the mid-point of $B C$.


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6. In a parallelogram $A B C D, E$ and $F$ are the mid-points of sides $A B$ and $C D$ respectively.

Show that the line segments AF and EC trisect
the diagonal BD.


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7. Show that the line segments joining the mid-points of the opposite sides of $a$ quadrilateral bisect each other.
8. $A B C$ is a triangle right angled at $C$. A line through the mid-point $M$ of hypotenuse $A B$ and parallel to $B C$ intersects $A C$ at D. Show that
$D$ is the mid-point of AC

9. $A B C$ is a triangle right angled at $C$. A line through the mid-point $M$ of hypotenuse $A B$ and parallel to $B C$ intersects $A C$ at $D$. Show that
$M D \perp A C$

10. $A B C$ is a triangle right angled at $C$. A line through the mid-point $M$ of hypotenuse $A B$ and parallel to $B C$ intersects $A C$ at $D$. Show that
$C M=M A=\frac{1}{2} A B$


$\square$
