MATHS

BOOKS - KALYANI MATHS (ASSAMESE ENGLISH)

similarity of geometric figures

Exercise

1. prove that two isosceles triangles are similar if their vertical angles are equal. (it is

supposed that the angle on the base of a triangle are equal).

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2. the altitude AM and BN of a triangle ABC intersects at P. prove that $\triangle APN$ and $\triangle BPM$ are similar.

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3. D is the point on the side BC of ABC such that $\angle ADC = \angle BAC$. Prove that, $\frac{BC}{CA} = \frac{CA}{CD}$.

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4. ABC and DBC are two right angled triangles with common hypotenuse BC with their sides AC and BD intersecting at P. Prove that:

$AP \times PC = DP \times PB$.

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5. the two triangles formed by drawing perpendicular from right angle to the hypotenuse of a right angled triangle are similar and both of them are similar to the original triangle.

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6. prove by using the principle of similar triangles that:

the line segment drawn parallel to the side of

a triangle divides the other sides proportionally.

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7. prove by using the principle of similar triangles that:

if a line segment divides two sides of a triangle proportionally, then it is a parallel to the third side.

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8. prove by using the principle of similar triangles that:

the centroid of triangle divides a median in the ratio of $2:1$.

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9. prove by using the principle of similar triangles that:

the diagonals of of a parallelogram bisects each other.

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10. find the lengths of diagonals of a rhombus AC and BD .given AB=60 cm and $\angle BAD = 60 degree.$

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11. prove by using the principle of similar triangles that:

in a right angle triangle, the square on the

hypotenuse is equal to the sum of squares on the two other sides. (Pythagoras theorem)

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12. ABCD is a parallelogram. E is the middle point of the side CD. BE intersects AC at the point X. prove that $AX = \frac{2}{3}AC$.

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13. in ABC, $AB = 4cm$, $BC = 5cm$ and $AC = 6cm$. construct a triangle similar to ABC such that each of its sides is $\frac{2}{3}$ rd of the corresponding sides of ABC.

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14. In ABC, $AB = 3cm$ $BC = 4cm$ and $CA = 5cm$, construct a triangle similar to ABC such that each of its sides is $\frac{3}{4}$ of the corresponding sides of ABC.

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15. ABCD is a parallelogram. E is any point on the side BC, line segment drawn through D and E cards the extended AB at T Prove that $DE \cdot EB = CE \cdot TE.$

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16. AB and BD are two parallel sides of trapezium ABCD. if the diagonals AC and BD meet at O, then prove that $\frac{AO}{OC} = \frac{BO}{OD}.$

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17. AB and CD two parallel sides of trapezium ABCD where $AB = 2CD$. AC and BD intersects at X. prove that $AX = \frac{2}{3}AC$.

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