

Worksheet -3

1. In a triangle ABC, AM is the median. Prove that
 $AB+BC+CA > 2AM$
2. In a triangle ABC, O is an interior point. Prove that
 $2(OA+OB+OC) > AB+BC+CA$
3. Find the unknown value:-
 - (a) In the triangle ABC, $\angle B = 90^\circ$, $AB = 3\text{cm}$, $BC = 4\text{cm}$,
 $AC = ?$
 - (b) In the triangle ABC, $\angle A = 90^\circ$, $AB = 6\text{cm}$, $AC = 8\text{cm}$,
 $BC = ?$
 - (c) In the triangle ABC, $\angle C = 90^\circ$, $BC = 12\text{cm}$, $AC = 5\text{cm}$,
 $AB = ?$
 - (d) In the triangle PQR, $\angle Q = 90^\circ$, $PQ = 12\text{cm}$, $PR = 13\text{cm}$,
 $QR = ?$
 - (e) In the triangle KLM, $\angle L = 90^\circ$, $KM = 17\text{cm}$, $KL = 12\text{cm}$,
 $LM = ?$
 - (f) In the triangle NOW, $NO = 40\text{cm}$, $OW = 9\text{cm}$ and $NW = 41\text{cm}$.
find the degree measure of $\angle O$.
4. The length of two sides of a triangle are 12cm and 15 cm .
Between what two measures should the length of the third side fall?
5. In a quadrilateral ABCD, Prove that $AB+BC+CD+AD > AC +BD$.
6. PQR is a triangle, right-angled at P. If $PQ = 10\text{ cm}$ and $PR = 24\text{ cm}$, find QR.

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7. ABC is a triangle, right-angled at C. If $AB = 25$ cm and $AC = 7$ cm, find BC.
8. A 15 m long ladder reached a window 12 m high from the ground on placing it against a wall at a distance a . Find the distance of the foot of the ladder from the wall.
9. Which of the following can be the sides of a right triangle?
10. PQR is a triangle, right-angled at P. If $PQ = 10$ cm and $PR = 24$ cm, find QR.
11. ABC is a triangle, right-angled at C. If $AB = 25$ cm and $AC = 7$ cm, find BC.
12. A 15 m long ladder reached a window 12 m high from the ground on placing it against a wall at a distance a . Find the distance of the foot of the ladder from the wall.
13. A tree is broken at a height of 5 m from the ground and its top touches the ground at a distance of 12 m from the base of the tree. Find the original height of the tree.
14. Find the perimeter of the rectangle whose length is 40 cm and a diagonal is 41 cm.
15. The diagonals of a rhombus measure 16 cm and 30 cm. find its perimeter.
16. How many medians can a triangle have?
17. Does a median lie wholly in the interior of the triangle? (If you think that this is not true, draw a figure to show such a case).

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18. Will an altitude always lie in the interior of a triangle?
19. Can you think of a triangle in which two altitudes of the triangle are two of its sides?
20. Can the altitude and median be same for a triangle?
21. Are the exterior angles formed at each vertex of a triangle equal?
22. Can you have a triangle with two right angles?
23. Can you have a triangle with two obtuse angles?
24. Can you have a triangle with two acute angles?
25. Can you have a triangle with all the three angles greater than 60° ?
26. Can you have a triangle with all the three angles equal to 60° ?
27. Can you have a triangle with all the three angles less than 60° ?
28. Which is the longest side in the triangle PQR, right-angled at P?
29. Which is the longest side in the triangle ABC, right-angled at B?
30. Which is the longest side of a right triangle?