

MATHEMATICS

PRACTICAL GEOMETRY

In $\triangle RST$, $R = 5$ cm, and $\angle SRT = 45^\circ$ and $\angle RST = 45^\circ$. Which criterion can be used to construct $\triangle RST$?
 @A.S.A. criterion
 @S.A.S. criterion
 @ S.S.S. criterion
 @ R.H.S. criterion
 @1000

Identify the criterion of construction of the equilateral triangle LMN given $LM = 6$ cm.
 @S.A.S. criterion
 @R.H.S. criterion
 @A.S.A. criterion
 @S.S.S. criterion
 @0001

The idea of equal alternate angles is used to construct which of the following?
 @A line parallel to a given line
 @A triangle
 @A square
 @Two triangles
 @1000

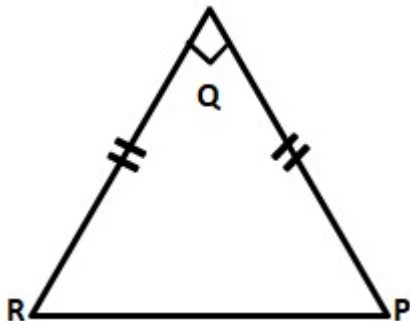
A Given $AB = 3$ cm, $AC = 5$ cm, and $\angle B = 30^\circ$, $\triangle ABC$ cannot be uniquely constructed, with AC as base, why?
 @Two sides and included angle are given.
 @The other two angles are not given.
 @The vertex B cannot be uniquely located.
 @The vertex A coincides with the vertex C.
 @0010

A line p and a point X not on it are given. Which of the following is used to draw a line parallel to p through X?
 @Equal corresponding angles.
 @Congruent triangles.
 @Angle sum property of triangles.
 @Pythagoras' theorem.
 @1000.

$\triangle PQR$ is such that $\angle P = \angle Q = \angle R = 60^\circ$ which of the following is true?
 @ $\triangle PQR$ is equilateral.
 @ $\triangle PQR$ is acute angled.
 @Both [a] and [b]
 @Neither [a] nor [b]
 @0010

Which vertex of $\triangle ABC$ is right angled if $\overline{AB} = 8$ cm, $\overline{AC} = 6$ cm, and $\overline{BC} = 10$ cm?
 @ $\angle C$
 @ $\angle A$
 @ $\angle B$
 @A or C
 @1000

8 An isosceles triangle is constructed as shown in the figure.



Which of the given statements is incorrect?

@ \overline{PR} is the hypotenuse of $\triangle PQR$.
 @ $\triangle PQR$ is an equilateral triangle.
 @ $\triangle PQR$ is a right angled triangle.
 @If right angled $\triangle PQR$ has its equal angles measuring 45° each
 @0100

$\triangle PQR$ is constructed with all its angles measuring 60° each. Which of the following is correct?
 @ $\triangle PQR$ is an equilateral triangle.
 @ $\triangle PQR$ is isosceles triangle.
 @ $\triangle PQR$ is a scalene triangle.
 @ $\triangle PQR$ is a right angled triangle.
 @1000

How many perpendicular lines can be drawn to a line from a point not on it?@1@2@0@Infinite@1000

Identify the false statement.@A triangle with three equal sides is called an equilateral triangle.@A triangle with a right angle is called a right angled triangle.@A triangle with two equal sides is called a scalene triangle.@ A right angled triangle has two acute angles and a right angle.@0010

$\triangle PQR$ is constructed such that $PQ = 5$ cm, $PR = 5$ cm and $\angle RPQ = 50^\circ$ Identify the type of triangle constructed.@An isosceles triangle@ An acute angled triangle@ An obtuse angled triangle@ Both [a] and [b]@0001

Which of the following is NOT constructed using a ruler and a set square?@A perpendicular to a line from a point not on it.@A perpendicular bisector of a line segment.@A perpendicular to a line at a point on the line.@ A line parallel to a given line through a given point.@0100

Study the steps of construction given.

Step 1: Draw a ray OA.

Step 2: With O as centre and any convenient radius draw an arc MN to cut OA at M.

Step 3: With M as centre and the same radius draw an arc to cut MN at P.

Step 4: With P as centre and the same radius, draw an arc to cut MN at Q.

Step 5: Draw OQ and produce it to D. An angle AOD is constructed.

What is the measure of $\angle AOD$?
@ 60° @ 30° @ 120° @ 45° @0010

In $\triangle XYZ$, x, y and z denote the three sides. Which of the following is incorrect?

@ $x - y > z$ @ $x + z > y$ @ $x - y < z$ @ $x + y > z$ @1000

In which of the following cases can a triangle be constructed?@Measures of three sides are given.@Measures of two sides and an included angle are given.@Measures of two angles and the side between them are given.@ All the above.@0001

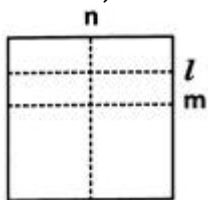
Based on the sides of a triangle, which of the following is a classification of triangles?@A right angled triangle@ An acute angled triangle@An obtuse angled triangle@An isosceles triangle@0001

Which of the following is used to draw a line parallel to a given line?@ A protractor@A set square@A ruler@A ruler and compasses@0001

19 Direction: David folds a sheet of paper.

The dotted lines as shown in the figure are

the creases formed, which are named as l, m and n.



What can you say about lines l and n?

@ $l \parallel n$ @ $l \perp n$ @l is the same line as n@Neither [a] nor [b]@0100

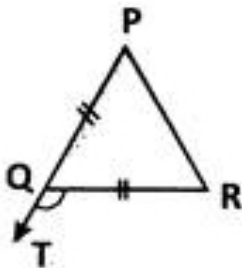
A Choose the correct option in which a triangle CANNOT be constructed with the given lengths of sides. @3 cm, 4 cm, 5 cm @7 cm, 6 cm, 5 cm @10 cm, 7 cm, 2 cm @ 12 cm, 8 cm, 6 cm @0010

Identify the true statement. @A triangle with 3 equal sides is isosceles. @A triangle with a 110° angle is right angled. @A triangle with 3 acute angles is acute angled. @A triangle with 2 equal sides is equilateral. @0010

Which of the following statements is incorrect? @The sum of angles in a triangle is 2 right angles. @The exterior angle of a triangle is equal to the interior angle of the triangle. @The hypotenuse is the longest side of a right angled triangle. @All the above. @0100

A triangular sign board is isosceles. If the unequal side is 7 cm and one of the equal sides is 6 cm, what is the measure of the third side? @5 cm @6 cm @7 cm @ Either [a] or [c] @0100?

24 In the given figure, find the measure of $\angle ROT$, if $PQ = QR$ and $\angle QPR = 60^\circ$.



@ 60° @ 140° @ 120° @ 100° @0010

Which among the following is used to construct a triangle? @The lengths of the three sides. @The perimeter of the triangle. @The measures of three angles. @The names of three vertices. @1000

How many lines can draw from a given point. @1 @2 @Infinite @None of these @0010

How many parallel lines can draw from a outside point of a given line? @1 @2 @Infinite @ None of these @1000

Which among the following is used to construct a triangle? @The lengths of the three sides. @The perimeter of the triangle. @The measures of three angles. @The names of three vertices. @1000

How many parallel lines can be drawn passing through a point, not on the given line? @2 @1 @3 @0 @0100

In which of the following cases is the construction of a triangle not possible? @Measures of 3 sides are given. @Measures of 2 sides and an included angle are given. @Measures of 2 angles and a side are given. @ Measures of 3 angles are given. @0001

Identify the true statement.
A triangle with 3 equal sides is isosceles.
A triangle with a 110° angle is right angled.
A triangle with 3 acute angles is acute angled.
A triangle with 2 equal sides is equilateral.

Choose the correct option in which a triangle CANNOT be constructed with the given lengths of sides.
3 cm, 4 cm, 5 cm
7 cm, 6 cm, 5 cm
10 cm, 7 cm, 2 cm
12 cm, 8 cm, 6 cm

Which is the longest side in the triangle ABC right angled at B?
BC
AC
AB
None of these

$\triangle PQR$ is a triangle right-angled at P. If $PQ = 3$ cm and $PR = 4$ cm, find QR.
3 cm
7 cm
5 cm
8 cm

Which is the longest side in the triangle PQR right angled at P?
PR
PQ
QR
None of these

The sum of the lengths of any two sides of a triangle is _____ the third side of the triangle.
less than
doubled
greater than
half

A/an _____ connect a vertex of a triangle to the mid-point of the opposite side.
altitude
vertex
median
None of these

In the Pythagoras property, the triangle must be _____
acute-angled
obtuse-angled
right-angled
None of these

Which is the longest side of a right triangle?
Hypotenuse
Base
Perpendicular
None of these

A triangle in which all three sides are of equal lengths is called _____.
Equilateral
Scalene
Isosceles
None of these

A triangle can be drawn if the hypotenuse and a ____ in the case of a right-angled triangle.
base
hypotenuse
leg
None of these

Sum of the lengths of any two sides of a triangle is greater than the length of the _____.
first side
second side
third side
none of these

A triangle can be drawn if ____ angles and one side given.
2
3
4
None of these

The exterior angle of a triangle is _____ in measure to the sum of interior opposite angles.
equal
unequal
different
None of these

$\triangle ABC$ is right-angled at C. If $AC = 5$ cm and $BC = 12$ cm find the length of AB.
17 cm
7 cm
13 cm
None of these

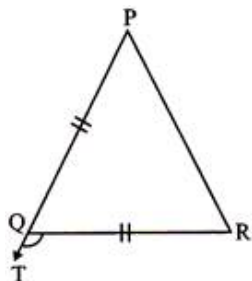
Identify the true statement.
A triangle with 3 equal sides is isosceles.
A triangle with a 95° angle can be right angled.
A triangle with 3 acute angles is acute angled.
A triangle with 2 equal sides is equilateral.

In which of the following cases is the construction of a triangle not possible?
Measures of 3 sides are given.
Measures of 2 sides and an included angle are given.
Measures of 2 angles and a side are given.
Measures of 3 angles are given.

Choose the correct option in which a triangle CANNOT be constructed with the given lengths of sides.
3 cm, 13 cm, 15 cm
6 cm, 6 cm, 6 cm
9 cm, 6 cm, 2 cm
13 cm, 6 cm, 8 cm

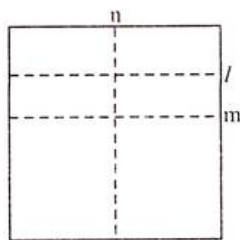
Which among the following is sufficient to construct a triangle?
 @The lengths of the three sides
 @The perimeter of the triangle
 @The measures of three angles
 @The names of three vertices.
 @1000

51 In the given figure, find the measure of $\angle RQT$ (exterior \angle le), if $PQ=QR$ and $\angle QPR=50^\circ$



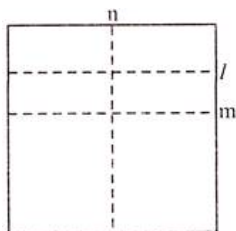
@ 80°
 @ 135°
 @ 100°
 @ 110°
 @0010

52 Direction: Meera folds a sheet of paper. The dotted lines as shown in the figure are the creases formed, which are named as 1, m and n. Which of the following is true?



@ $1 \parallel m$
 @ $1 \parallel n$
 @ $n \parallel m$
 @Either B or C
 @1000

53 Direction: Meera folds a sheet of paper. The dotted lines as shown in the figure are the creases formed, which are named as 1, m and n. What can you say about lines 1 and n?



@ $1 \parallel m$
 @ $1 \perp n$
 @1 is the same line as n
 @Neither (A) nor (B)
 @0100

A triangular sign board on highway from Agartala to Dibrugarh is isosceles. If the unequal side is 8 cm and one of the equal sides is 9 cm, what is the measure of the third side?
 @9 cm
 @8 cm
 @ $17/2$ cm
 @Either
 @1000

Which of the following is used to draw a line parallel to a given line?
 @ A protractor
 @A set square
 @A ruler
 @A ruler and compass
 @0001

Which of the following statements is incorrect?
@ The sum of angles in a triangle is 2 right angles.
@The exterior angle of a triangle is equal to the interior angle of the triangle.
@ The hypotenuse is the longest side of a right angled triangle.
@All the above

How many parallel lines can be drawn passing through a point not on the given line?
@2
@1
@3
@0

In which of the following cases can a triangle be constructed?
@Measures of three sides are given
@Measures of two sides and an included angle are given.
@Measures of two angles and the side between them are given.
@All the above

Which type of triangle is in the classification based on angles only?
@An equilateral triangle
@A scalene triangle
@A right angled triangle
@An isosceles triangle

The measurements of $\triangle DEF$ are $EF=8.4$ cm, $\angle E=100^\circ$ and $\angle F=82^\circ$. Which of the following is correct?
@ $\triangle DEF$ can be constructed.
@ $\triangle DEF$ is an obtuse angled triangle.
@ $\triangle DEF$ cannot be constructed
@ $\triangle DEF$ is an acute angled triangle.

Based on the sides of a triangle, which of the following is a classification of triangles?
@A right angled triangle
@An acute angled triangle
@An obtuse angled triangle
@An isosceles triangle

Which of the following can be used to construct a 30° angle?
@Construct a 60° angle using compasses and bisect it.
@Construct a perpendicular bisector of a line segment.
@Construct the bisector of any angle.
@Construct an angle congruent to any given angle.

Rohan thinks he knows how to bisect angles and follows following steps to construct 45° angle.
Step 1: Construct an angle of 90° .

Step 2: Bisect the 90° angle.

Step 3: Bisect one of the angles obtained in step 2.

Which steps is not required to construct a 45° angle?
@Step 1
@Step 2
@Step 3
@Step 2 and 3

In $\triangle XYZ$, a , b , c denote the three sides, which of the following is incorrect?
@ $a-b > c$
@ $a+c > b$
@ $a-b < c$
@ $a+b > c$

Which of the following is NOT constructed using a ruler and a set square?
@A perpendicular to a line from a point not on it.
@A perpendicular bisector of a line segment.
@A perpendicular to a line at a point on the line.
@A line parallel to a given line through a given point.

Given $PQ=6$ cm, $QR=55$ cm and $RP=55$ cm, what type of a triangle can be constructed?
@An acute angled triangle.
@An obtuse angled triangle
@An equilateral triangle
@A right angle triangle

Identify the false statement.
@A triangle with three equal sides is called an equilateral triangle.
@A triangle with a right angle is called a right-angled triangle.
@A triangle with two equal sides is called a scalene triangle.
@A right angled triangle has two acute angles and a right angle.

Identify the condition to be checked before constructing a triangle.
@Sum of the three angles is 180° .
@The sum of any two of the sides is greater than the third

side. The difference of any two sides is lesser than the third side. All the above.

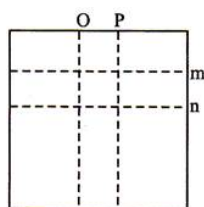
Identify the condition when a triangle can be constructed? One side and two acute angles are given. A side and an acute angle are given. Two obtuse angles are given. All given sides are equal.

How many perpendicular lines can be drawn to a line from a point not on it? 1 2 0 Infinite

$\triangle PQR$ is constructed with all its angles measuring 60° each. Which, of the following is correct? $\triangle PQR$ is an equilateral triangle. $\triangle PQR$ is isosceles triangle. $\triangle PQR$ is a scalene triangle. $\triangle PQR$ is a right angled triangle.

72 Rajkumari folds a sheet of paper in the following way:

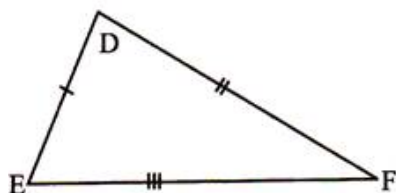
Which of the following is false?



Line O || line of P. Line m \perp line n. With respect to lines O & P, line 'n' is a transversal. With respect to lines m and n, line 'O' is transversal.

73 A triangle is constructed as shown in the figure.

Which of the following is not correct about $\triangle DEF$?



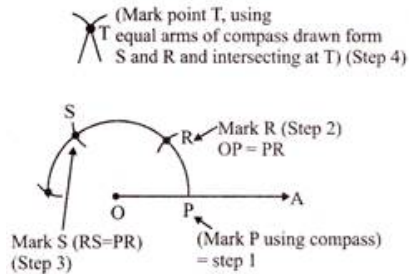
$\triangle DEF$ has all its sides equal. $\triangle DEF$ is an acute angled triangle. $\triangle DEF$ is a scalene triangle. $\triangle DEF$ is not an equilateral triangle.

In $\triangle ABC$ $\overline{AB} < \overline{BC} < \overline{CA}$ which of the following is the smallest angle? $\angle A$ $\angle B$ $\angle C$ $\angle A = \angle B = \angle C$

An isosceles triangle is constructed as shown in the figure. Which of the given statements is incorrect? \overline{PR} is the hypotenuse of $\triangle PQR$. $\triangle PQR$ is an equilateral triangle. $\triangle PQR$ is a right-angled triangle. In right angled $\triangle PQR$, its equal angles measure as

$90^\circ, 45^\circ, 45^\circ$.

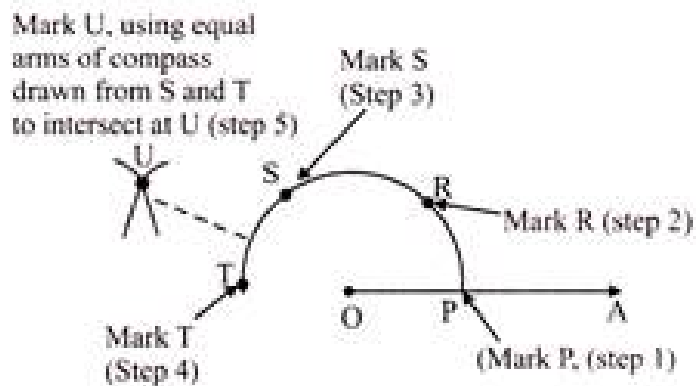
76 Identify the angle that gets constructed: after step 4 and by joining the points O and T.



@30°@45°@60°@90°@0001

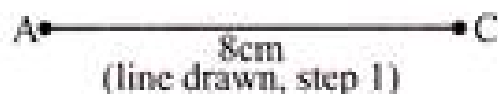
In the above figure, identify the angle constructed after step 3 and by joining the points O and S.

78 Identify the angle that is constructed after step 5 in the figure below and by joining the points O and U (where $\overline{PR} = \overline{RS} = \overline{ST}$)



@40°@140°@135°@150°@0001

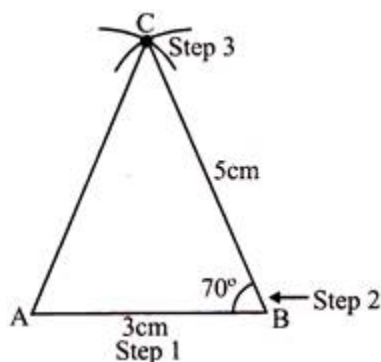
79 Given $AB=6$ cm $BC=7$ cm $CA=8$ cm, which of the following are right steps for constructing $\triangle ABC$.



@ Step 1 is correct step 2 & 3 are wrong@Step 2 & 3 are right step 1 is wrong@All steps 1 to 3 are right@None of the above.@0010

Which property has been used to construct the triangle in question 33?@RHS property@SSS property@SAS property@ASA property@0100

81 Given $AB=3\text{ cm}$, $BC=5\text{ cm}$ $\angle C=70^\circ$, are the following steps to construct the \triangle correctly shown?
Step 1: Draw $AB=3\text{ cm}$
Step 2: Draw angle $=70^\circ$ from B using protractor
Step 3: Cut off length $= 5\text{ cm}$ to get C



@Step 1 is correct@Step 2 is correct@All steps are correct@Step 1 should be to draw $BC = 5\text{ cm}$ @0001

Which property is the correct one to construct triangle in question 35.@SSS Property@SAS property@RHS property@AAA property@0100

A line p and a point X not on it are given. Which of the following can be used to draw a line parallel to p through X ?@Equal corresponding angles@Congruent triangles.@Heron's formula@Pythagoras' theorem.@1000

Given $AB=3\text{ cm}$, $AC=5.2\text{ cm}$, and $\angle B=35^\circ$. $\triangle ABC$ cannot be uniquely constructed, with AC as base, why?@Two sides and included angle are given.@The other two angles are not given.@The vertex B cannot be uniquely located.@The vertex A coincides with the vertex C .@0010

A triangle $\triangle PQR$ with $\angle Q=90^\circ$, $QR=4\text{ cm}$ and $PR = 5\text{ cm}$ is constructed. What would be the measure of PQ ?@2 cm@6 cm@7 cm@3 cm@0001

The idea of equal alternate angles is used to construct which of the following?

@A line parallel to a given line @A triangle@A square@Two triangles@A

In $\triangle ABC$, if $AB=7\text{ cm}$, $\angle A=40^\circ$ and $\angle B=70^\circ$, which criterion can be used to construct this triangle?@ASA@SSS@SAS@RHS@A

89 Which one of the following is true for the given triangle?

$\angle 3 = \angle 1 + \angle 2$ $\angle 1 = \angle 3 + \angle 2$ $\angle 2 = \angle 1 + \angle 3$ Both (A) and (B) 1000

The SSS criterion is used to construct a triangle when the lengths of the three sides are given. SAS SSS RHS ASA 0100

A triangle can be constructed by taking its sides as 1.8 cm, 2.6 cm, 4.4 cm 2 cm, 3 cm, 4 cm 2.4 cm, 2.4 cm, 6.4 cm 3.2 cm, 2.3 cm, 5.5 cm 0100

A triangle can be constructed by taking two of its angles as 110° , 40° , 70° , 115° , 135° , 45° , 90° , 90° 1000

Which of the following sets of triangles could be the lengths of the sides of a right-angled triangle? 3 cm, 4 cm, 6 cm 9 cm, 16 cm, 26 cm 1.5 cm, 3.6 cm, 3.9 cm 7 cm, 24 cm, 26 cm 0010

In which of the following cases, a unique triangle can be drawn? $AB=4$ cm, $BC=8$ cm and $CA=2$ cm $BC=5.2$ cm, $\angle S=90^\circ$ and $\angle C=110^\circ$ $XY=5$ cm, $\angle X=45^\circ$ and $\angle Y=60^\circ$ An isosceles triangle with the length of each equal side 6.2 cm. 0010

Which of the following statements is INCORRECT? If length of any two sides of a triangle are 7 cm and 10 cm, then length of its third side lies between 3 cm and 17 cm. It is possible to construct a unique triangle if all its three angles are given. An angle of $7\frac{1}{2}^\circ$ can't be constructed using compasses and ruler. None of these 0010

Which of the following steps is INCORRECT while constructing $\triangle XYZ$ if it is given that $XY=6$ cm, $\angle ZXY=30^\circ$ and $\angle XYZ=100^\circ$
Step 1: Draw line XV of length 6 cm.
Step 2: At X, draw a ray XP making an angle of 30° with XY.
Step 3: At V, draw a ray YQ making an angle of 100° with YX.
Step 4: The point of intersection of the two rays XY and YQ is Z.
Step 1 Step 2 and Step 4 Step 3 Step 4 0001

Which among the following is used to construct a triangle? The lengths of the three sides. The perimeter of the triangle. The measures of three angles. The names of three vertices. 1000

In the given figure, find the measure of $\angle ROT$, if $PQ=QR$ and $\angle QPR=60^\circ$. 60° 140° 120° 100° 0010

Arrange the given steps in CORRECT order, while constructing $\triangle PQR$ where $PM \perp QS$ and it is given that $QR=4.2$ cm, $\angle Q=120^\circ$ and $PQ=3.5$ cm.
Step 1. Now, extend RQ to S and with P as centre and with a sufficient radius, draw an arc, cutting SO at A and 8.
Step 2. Along QX, set off $QP=3.5$ cm.
Step 3. Draw a line segment $QR=4.2$ cm and construct $\angle RQX=120^\circ$.
Step 4. Join PR.
Step 5. Join PC, meeting RQ produced at M. Then.
 $PM \perp QS$
Step 6. With A as centre and radius more than half AB, draw an arc. Now with B as centre and with the same radius draw another arc, cutting the previous arc at C. 1 2 192 $\rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6$ $\rightarrow 4 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 5 \rightarrow 6$ $\rightarrow 2 \rightarrow 4 \rightarrow 3 \rightarrow 1 \rightarrow 5 \rightarrow 6$ $\rightarrow 3 \rightarrow 2 \rightarrow 4 \rightarrow 1 \rightarrow 6 \rightarrow 5$ 0001

State 'T' for true and 'F' for false.
(1) In a triangle, the measure of exterior angle is equal to the sum of the measure of interior opposite angles.
(2) The sum of the measures of the three angles of a triangle is 90° .
(3) A perpendicular is always at 90° to a given line or surface.

Answers: (1) T (2) F (3) F

Which of the following steps is INCORRECT while constructing $\triangle LMA$, right angled at M, given that $LN = 5$ cm and $MN = 3$ cm?

Step 1. Draw MN of length 3 cm.

Step 2. At M, draw $MX \perp MN$. (L should be somewhere on this perpendicular).

Step 3. With N as centre, draw an arc of radius 5 cm. (L must be on this arc, since it is at a distance of 5 cm from N).

Step 4. L has to be on the perpendicular line MX as well as on the arc drawn with centre N. Therefore, L is the meeting point of these two and $\triangle LMA$ is obtained.
Answers: Only Step 4, Both Step 2 and Step 3, Only Step 2, None of these

AB