Practical Geometry



MATHEMATICS

QUESTIONS

1.	1. Choose the correct option in which a triangle CANNOT be constructed with the given lengths											
	(a) 3 cm, 13 cm, 15 cm		(b) 6 cm, 6 cm, 6 cm									
	(c) 9 cm, 6 cm, 2 cm		(d) 13 cm, 6 cm, 8 cm									
2.	Which among the follo	wing is sufficient to constru	uct a triangle?									
	(a) The lengths of the three sides		(b) The perimeter of the triangle									
	(c) The measures of three angles		(d) The names of three vertices.									
3.	Which of the following is used to draw a line parallel to a given line?											
	(a) A protractor	(b) A set square	(c) A ruler	(d) A ruler and compass								
4.	In which of the following cases can a triangle be constructed?											
	(a) Measures of three sides are given.											
	(b) Measures of two sid	are given.										
	(c) Measures of two angles and the side between them are given.											
	(d) All the above.											
5.	Which type of triangle i	is in the classification base	d on angles only?									
	(a) An equilateral triang	gle	(b) A scalene triangle									
_	(c) A right angled triangle (d) An isosceles triangle											
6.	The measurements of $\triangle DEF$ are $EF = 8.4$ cm, $\angle E = 100^{\circ}$ and $\angle F = 82^{\circ}$. Which of the following is											
	(a) ADEF can be constructed.											
	(b) ADEF is an obtuse angled triangle. (c) A cannot be constructed											
	(d) ADEF is an acute a	ngled triangle.										
7.	Which of the following can be used to construct a 30° angle?											
	(a) Construct 60° angle using compasses and bisect it.											
	(b) Contact a perpendi	cular bisector of a line seg	ment.									
	(c) Construct the bisector of any angle.											
	(d) Construct an angle congruent to any given angle.											
8.	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 requ	ired to construct a 45° ar	onstruct a 30° angle? es and bisect it. a line segment. y given angle. ngles and follows following steps to construct 45° angle. ed in step 2. a 45° angle? (c) Step 3 (d) Step 2 and 3 which of the following is incorrect?									
	(a) Step 1	(b) Step 2	(c) Step 3	(d) Step 2 and 3								
9.	In ΔXYZ , a, b, c denote	n ΔXYZ , a, b, c denote the three sides, which of the following is incorrect?										
	(a) $a - b > c$	(b) $a + c > b$	(c) $a - b < c$	(d) $a+b>c$								

- **10.** Given $PQ = 6 \ cm$, $QR = 55 \ cm$ and $RP = 55 \ cm$, what type of a triangle can be constructed?
 - (a) An acute angled triangle.
 - (b) An obtuse angled triangle
 - (c) An equilateral triangle
 - (d) A right angle triangle
- **11.** Identify the false statement.
 - (a) A triangle with three equal sides is called an equilateral triangle.
 - (b) A triangle with a right angle is called a right angled triangle.
 - (c) A triangle with two equal sides is called a scalene triangle.
 - (d) A right angled triangle has two acute angles and a right angle.
- **12.** Identify the condition to be checked before constructing a triangle.
 - (a) Sum of the three angles is $180^\circ\,.$
 - (b) The sum of any two of the sides is greater than the third side.
 - (c) The difference of any two sides in lesser than the third side.
 - (d) All the above.
- **13.** Identify the condition when a triangle can be constructed?
 - (a) One side and two acute angles are given.
 - (b) A side and an acute angle are given.
 - (c) Two obtuse angles are given.
 - (d) All given sides are equal.
- 14. ΔPQR is constructed with all its angles measuring 60° each. Which of the following is correct?
 - (a) ΔPQR is an equilateral triangle.
 - (b) ΔPQR is isosceles triangle.
 - (c) ΔPQR is a scalene triangle.
 - (d) ΔPQR is a right angled triangle.
- **15.** A triangle is constructed as shown in the figure.



Which of the following is not correct about ΔDEF ?

- (a) $\triangle DEF$ has all its sides equal.
- (b) ΔDEF is an acute angled triangle.
- (c) ΔDEF is a scalene triangle.
- (d) ΔDEF is not an equilateral triangle.

- **16.** In $\triangle ABC$, $\overline{AB} > \overline{BC} > \overline{CA}$ which of the following is the smallest angle?
 - (a) $\angle A$ (b) $\angle B$ (c) $\angle C$ (d) $\angle A = \angle B = \angle C$ Which property has been used to construct the triangle in Q 33?(a) RHS property(b) SSS property(c) SAS property(d) ASA property
- **18.** Given AB = 3 cm, BC = 5 cm, $\angle C = 70^{\circ}$, are the following steps to construct the \triangle correctly shown?

Step 1: Draw *AB* = 3 *cm*

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Step 2: Draw angle $= 70^{\circ}$ from B using protractor

Step 3: Cut off length $= 5 \ cm$ to get C



(a) Step 1 is correct

(c) All steps are correct

(b) Step 2 is correct

(d) Step 1 should be to draw $BC = 5 \ cm$

(d) 3 cm

- **19.** Given AB = 3 cm, AC = 5.2 cm, and $\angle B = 35^{\circ}$. $\angle ABC$ cannot be uniquely constructed, with AC as base, why?
 - (a) Two sides and included angle are given.
 - (b) The other two angles are not given.
 - (c) The vertex B cannot be uniquely located.
 - (d) The vertex A coincides with the vertex C.

20. A triangle $\triangle PQR$ with $\angle Q = 90^\circ$, $QR = 4 \ cm$ and $PR = 5 \ cm$ is constructed. What would be the measure of PQ?

(c) 7 cm

(a) 2 cm (b) 6 cm

ANSWER - KEY												
1.	С	2.	А	3.	D	4.	D	5.	С			
б.	С	7.	А	8.	С	9.	А	10.	А			
11.	С	12.	D	13.	А	14.	А	15.	А			
16.	В	17.	D	18.	С	19.	D	20.	А			

SOLUTIONS

- **1.** Difference of 2 sides, [9-6=3] is greater than third side, whereas it should be lesser.
- **2.** (a) Not available
- **3.** (d) Not available
- **4.** (d) Not available
- **5.** (c) Not available
- 6. Δle cannot be constructed as sum of only two $\Delta les \ \angle E \ \& \ \angle F > 180^{\circ}(\angle E + \angle F = 182^{\circ})$, which is not possible in a Ale.
- **7.** (a) Not available
- 8. (c) Not available
- **9.** Actually, $a b < c \forall a, b, c$ (the symbol, $\forall a, b, c$ means for all a, b, c) This implies that b c < a; c a < b
- **10.** Since $QR = RP \Rightarrow$ it is isosceles Δle and an isosceles Δle is always acute $\angle led$.
- **11.** In (C), such a Δle is called isosceles Δle .
- **12.** (d) Not available
- **13.** (a) Not available
- **14.** (a) Not available
- **15.** (a) Not available
- **16.** (b) Not available
- **17.** It is important to identify the segments on which angle can be constructed. Since given angle is $\angle C$ hence the segment will be BC.
- **18.** Here construction has to start with AB as base.
- **19.** Use RHS property to Contruct the Ale as. Shown:



20. (a) Not available