Practice Challenge - Objective

Subject: Mathematics

Topic : Constructions Theory
Session 1

Class: X

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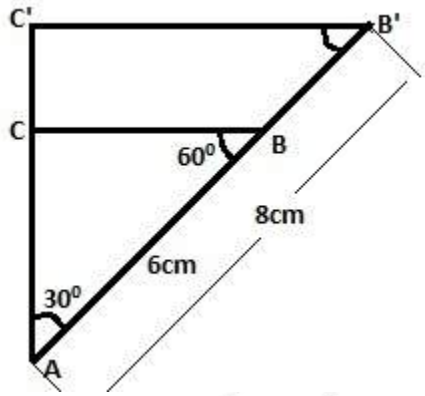
1. A ΔABC with AB = 6 cm, $\angle A = 30^\circ$ and $\angle B = 60^\circ$ is given. Another $\Delta AB'C'$ similar to ΔABC with AB' = 8 cm is constructed as shown below:



The reason why we don't construct a ray making an acute angle at A is

A. ΔABC is a right-angled triangle.

B. Length of AB' is given.

C. Scale is not given.

D. $\angle A = 30^\circ$

2. What will the ratio $AB : AC$ be if C divides the line segment AB in the ratio $5 : 12$?

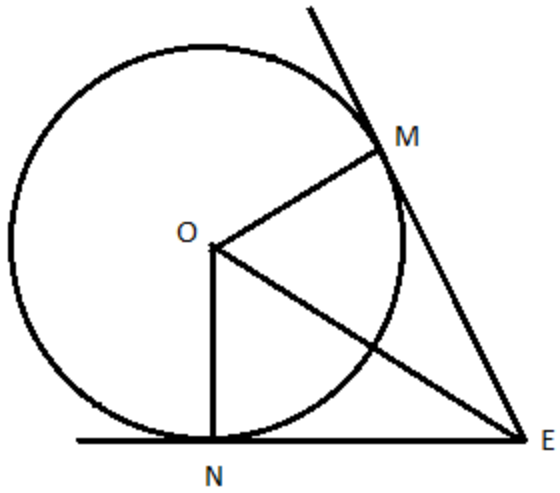
A. $5 : 12$

B. $17 : 12$

C. $12 : 17$

D. $17 : 5$

3. You are given a circle with radius 'r' and centre 'O'. You are asked to draw a pair of tangents which are inclined at an angle of 60° with each other, from a point E.
Refer to the figure and select the option which would lead you to the required construction. The distance d is the distance OE.



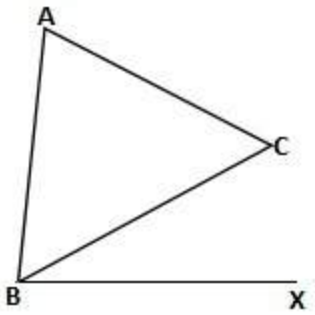
A. Using trigonometry, arrive at d = r and mark E.

B. Construct the △MNO as it is equilateral triangle.

C. Mark M and N on the circle such that ∠MOE = 60° and ∠NOE = 60°.

D. Mark M and N on the circle such that ∠MOE = 120° and ∠NOE = 120°.

4. Initial step for constructing a similar triangle of ΔABC is given below $\angle CBX$ is a/an:



A. acute angle

B. right angle

C. obtuse angle

D. reflex angle

5. Match the following based on the construction of similar triangles, if scale factor $(\frac{m}{n})$ is

$I. \quad > 1$	$a)\ The\ similar\ triangle\ is\ smaller\ than\ the\ original\ triangle.$
$II. \quad < 1$	$b)\ The\ two\ triangles\ are\ congruent\ triangles.$
$III. \quad = 1$	$c)\ The\ similar\ triangle\ is\ larger\ than\ the\ original\ triangle.$

A. $I-c, II-a, III-b$

B. $I-b, II-a, III-c$

C. $I-a, II-c, III-b$

D. $I-a, II-b, III-c$

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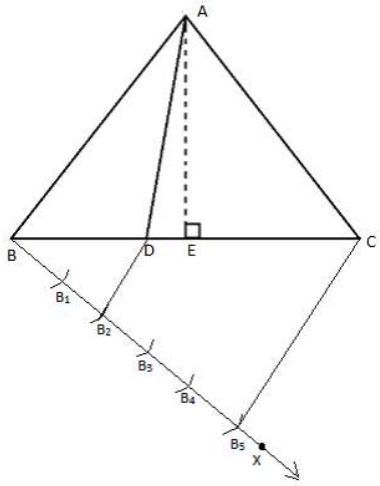
6. Find the ratio in which D divides side BC if:
$\frac{Ar(\Delta ABD)}{Ar(\Delta ADC)} = \frac{2}{3}$.



A. 4 : 3

B. 4 : 5

C. 2 : 3

D. 1 : 1

7. For a scale factor greater than 1, the ratio of the area of triangle to be constructed to the area of the given triangle will always be

A. Equal to 1

B. Equal to 2

C. Less than 1

D. Greater than 1

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8. Which of the following is not true for a point P on the circle?

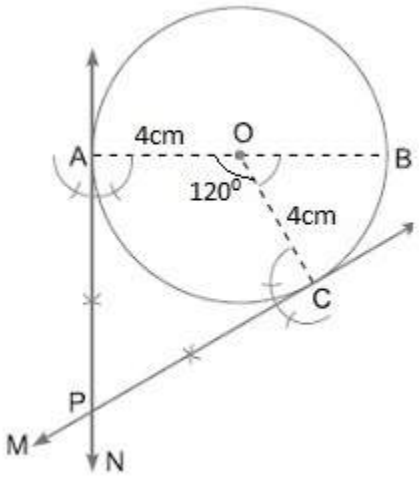
   A. Perpendicular to the tangent passes through the centre

   B. There are 2 tangents to the circle from point P

   C. Only 1 tangent can be drawn from point P

   D. None of these

9. In the figure below, two tangents are drawn from a point P to a circle meeting it at points A and C.
   If $\angle AOC = 120^\circ$, what is the value of $\angle APC$?



   A. 120°

   B. 30°

   C. 60°

   D. 80°

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10. For which of the following can a perpendicular bisector be drawn?

A. Line

B. Ray

C. Line segment

D. Both Line and Ray