TRIANGLES

In most sciences one generation tears down what another has built and what one has established another undoes. In mathematics alone each generations adds a new story to the old structure.

By O.P. GUPTA Math Mentor
INDIRA AWARD WINNER

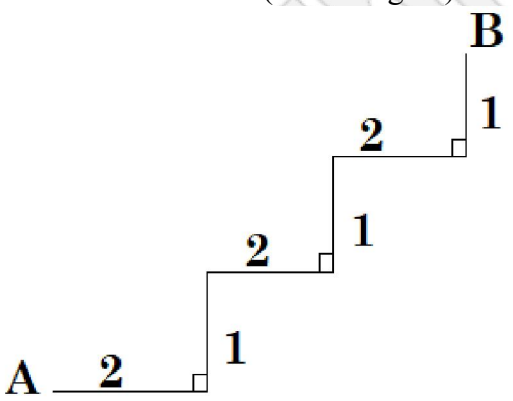
For detailed solutions, check YouTube Channel.

YouTube.com/MathematiciaByOPGupta

☆ Multiple Choice Questions, with **only** one correct option.

Q01. Given that $\Delta ABC \sim \Delta DEF$. If $DE = 2AB$ and $BC = 3$ cm then, EF is equal to _____.
(a) 12 cm (b) 2 cm (c) 1.5 cm (d) 6 cm

Q02. The straight line distance between A and B is (see the figure):



(a) $5\sqrt{3}$ (b) 5 (c) $3\sqrt{5}$ (d) $5\sqrt{2}$

Q03. In a triangle ABC, $\angle A = 25^\circ$, $\angle B = 35^\circ$ and $AB = 16$ units.
In another triangle PQR, $\angle P = 35^\circ$, $\angle Q = 120^\circ$ and $PR = 4$ units.
Which of the following is true?
(a) $ar(\Delta ABC) = 2ar(\Delta PQR)$ (b) $ar(\Delta ABC) = 4ar(\Delta PQR)$
(c) $ar(\Delta ABC) = 8ar(\Delta PQR)$ (d) $ar(\Delta ABC) = 16ar(\Delta PQR)$

Q04. The altitude of an equilateral triangle, having the length of its side as 12 cm, is:
(a) $6\sqrt{2}$ cm (b) 6 cm (c) 8.5 cm (d) $6\sqrt{3}$ cm

Q05. The areas of two similar triangles are 49 cm^2 and 64 cm^2 respectively. The ratio of their corresponding sides is
(a) 49:64 (b) 7:8 (c) 64:49 (d) None of these

Q06. If ΔABC is similar to ΔDEF such that $BC = 3$ cm, $EF = 4$ cm and area of $\Delta ABC = 54$ cm^2. Then the area of ΔDEF is:
(a) 106 cm^2 (b) 96 cm^2 (c) 120 cm^2 (d) 132 cm^2

Q07. All the equilateral triangles are _____.
(a) Similar (b) Congruent (c) both (a) and (b) (d) None of these

Q08. A triangle PQR is similar to another triangle ABC such that $ar(PQR) = 4\,ar(ABC)$. The ratio of their perimeters is given as:

(a) 2:1 (b) 1:2 (c) 4:1 (d) None of these

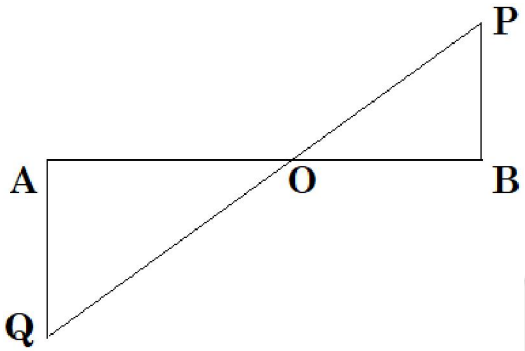
Q09. In a right triangle ABC right angled at C, $AC = BC$. Then $AB^2 =$ ___ $\times AC^2$.

(a) 1 (b) 2 (c) 4 (d) None of these

Q10. If the three sides of a triangle are a, $\sqrt{3}\,a, \sqrt{2}\,a$ then the measure of the angle opposite to the longest side is:

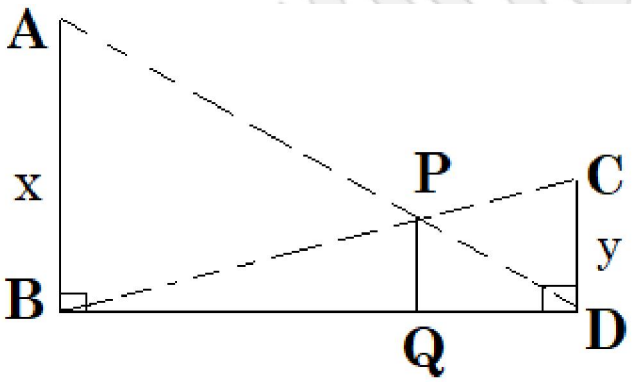
(a) 60° (b) 90° (c) 45° (d) 30°

Q11. QA and PB are perpendicular on AB, if $AO = 10$ cm, $BO = 6$ cm and $PB = 9$ cm, then measure of AQ (see the figure):



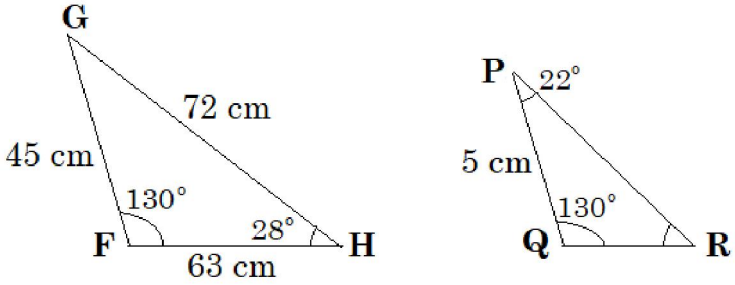
(a) 15 cm (b) 25 cm (c) 10 cm (d) None of these

Q12. In right triangles ABD and BDC (see the figure given below), $AB = x$ and $CD = y$, then PQ is:



(a) $\frac{xy}{x+y}$ (b) $\frac{x-y}{xy}$ (c) $\frac{x+y}{xy}$ (d) None of these

Q13. In the figure (see the figure) FGH and PQR are two triangles.



If the measurements are as shown in the figure, then PR is equal to:

(a) 16 cm (b) 12 cm (c) 8 cm (d) 4 cm

Q14. If $\Delta ABC \sim \Delta PQR$, $ar(PQR) = 100$ cm^2 and $\frac{AB}{PQ} = \frac{1}{2}$, then ar(ABC) is:

(a) 50 cm^2 (b) 25 cm^2 (c) 4 cm^2 (d) None of these

Q15. The areas of two similar triangles are 144 cm^2 and 81 cm^2. If one median of the first triangle is 16 cm, length of corresponding median of the second triangle is:

(a) 9 cm (b) 27 cm (c) 12 cm (d) 16 cm

Q16. The ratio of the areas of two similar triangles is equal to the:

(a) ratio of their corresponding sides (b) ratio of their corresponding altitudes

(c) ratio of the squares of their perimeters (d) ratio of the squares of their corresponding sides

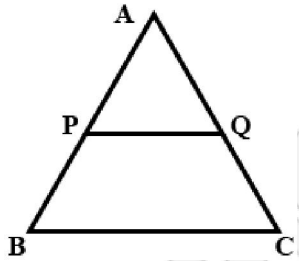
Q17. A boy walks 300 m towards East and then 250 m towards North. The distance of the boy from the starting point is:

(a) 250 m (b) $50\sqrt{61}$ m (c) $60\sqrt{61}$ m (d) $10\sqrt{61}$ m

Q18. The area of two similar triangles ABC and PQR are 25 cm^2 and 49 cm^2. If QR = 9.8 cm, then BC is:

(a) 9.81 m (b) 7 cm (c) 49 cm (d) 25 cm

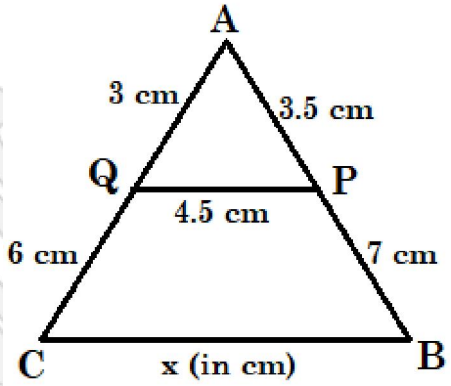
Q19. In the given figure, PQ || BC and AP : PB = 1 : 2 .



Then $\frac{ar(\Delta APQ)}{ar(\Delta ABC)}$ equals:

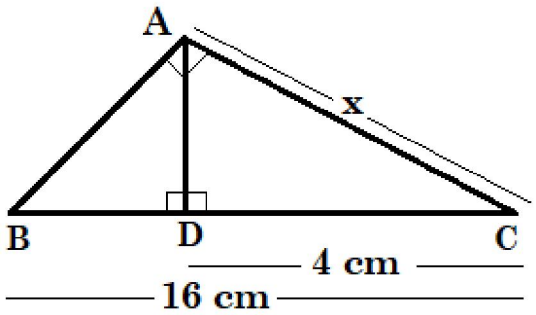
(a) 1 : 4 (b) 4 : 1 (c) 1 : 9 (d) 2 : 9

Q20. In the given figure, write the value of x .



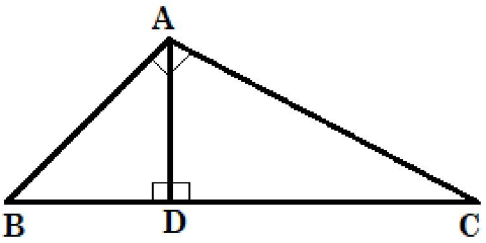
(a) 9 cm (b) 10.5 cm (c) 13.5 cm (d) 12 cm

Q21. In the given figure, the value of x is:



(a) 4 cm (b) 5 cm (c) 8 cm (d) 3 cm

Q22. In the given figure, ∠BAC = 90° and AD ⊥ BC , then:



(a) $BD \cdot CD = BC^2$ (b) $BD \cdot CD = AD^2$ (c) $AB \cdot AC = BC^2$ (d) $AB \cdot AC = AD^2$

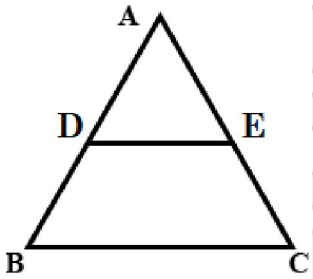
Q23. ΔABC is equilateral triangle with each side of length 2p. If $AD \perp BC$, then value of AD is:

(a) $\sqrt{3}$ (b) $\sqrt{3}\,p$ (c) $2p$ (d) $4p$

Q24. If $\Delta ABC \sim \Delta PQR$, perimeter of $\Delta ABC = 20$ cm, perimeter of $\Delta PQR = 40$ cm and $PR = 8$ cm, then the length of AC is:

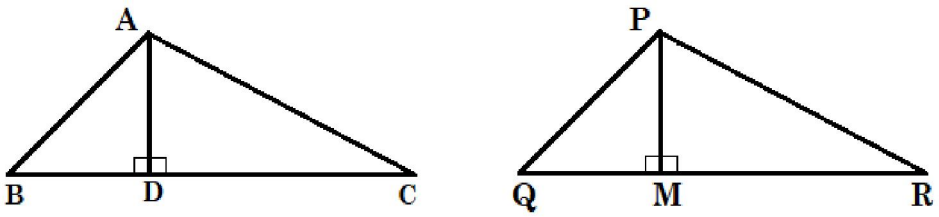
(a) 8 cm (b) 6 cm (c) 4 cm (d) 5 cm

Q25. In the given figure, $\frac{AD}{DB} = \frac{AF}{EC}$ and $\angle ADE = 70°$, $\angle BAC = 50°$, then $\angle BCA =$



(a) 70° (b) 50° (c) 80° (d) 60°

Q26. If ΔABC and ΔPQR, area of $\Delta ABC = 81$ cm^2 and area of $\Delta PQR = 121$ cm^2 and altitude $AD = 9$ cm, then PM equals:



(a) 10cm (b) 11cm (c) 12cm (d) 15cm

Q27. The shadow of a tower 5 m long is 2 m. At the same time the shadow of a tree 12.5 m high is:

(a) 3 m (b) 3.5 m (c) 5 m (d) 4.5 m

Q28. In an isosceles triangle ABC, If $AC = BC$ and $AB^2 = 2AC^2$, then $\angle C$ equals:

(a) 30° (b) 45° (c) 90° (d) 60°

Q29. If $\Delta ABC \sim \Delta PQR$, perimeter of $\Delta ABC = 32$ cm, perimeter of $\Delta PQR = 48$ cm, and $PR = 6$ cm, then the length of AC is equal to:

(a) 9 cm (b) 4 cm (c) 8 cm (d) 118 cm

Q30. D and E are respectively the midpoint on the sides AB and AC of a ΔABC and $BC = 6$ cm. If $DE = BC$, then the length of DE (in cm) is:

(a) 2.5 (b) 3 (c) 5 (d) 6

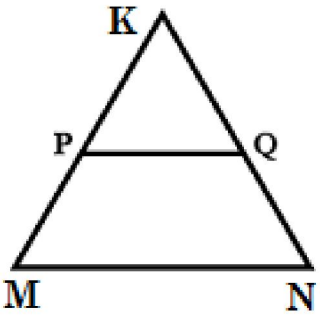
Q31. If ABCD is parallelogram P is a point on side BC and DP when produced meets AB produced at L, then select the correct option.

(a) $\frac{DP}{BL} = \frac{DC}{PL}$ (b) $\frac{DP}{PL} = \frac{DC}{BL}$ (c) $\frac{DP}{PL} = \frac{BL}{DC}$ (d) $\frac{DP}{PL} = \frac{AB}{DC}$

Q32. The length of attitude of an equilateral triangle of side 8 cm is:

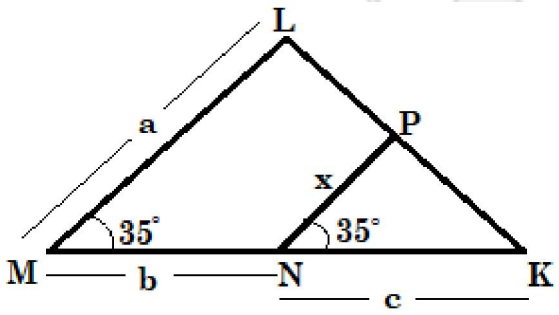
(a) $\sqrt{3}$ cm (b) $2\sqrt{3}$ cm (c) $3\sqrt{3}$ cm (d) $4\sqrt{3}$ cm

Q33. In the figure given below, $PQ \| MN$. If $\frac{KP}{PM} = \frac{4}{13}$ and $KN = 20.4$ cm, then the value of KQ is:



(a) 2.8 cm (b) 3.8 cm (c) 4.8 cm (d) 5.8 cm

Q34. In the figure given below, find x in terms of a, b and c.



(a) $\frac{ab}{a+c}$ (b) $\frac{ac}{b+c}$ (c) $\frac{bc}{a+b}$ (d) $\frac{ac}{a+b}$

ANSWERS KEY

Q01. d	Q02. c	Q03. d	Q04. d	Q05. b	Q06. b	Q07. a
Q08. a	Q09. b	Q10. b	Q11. a	Q12. a	Q13. c	Q14. b
Q15. c	Q16. d	Q17. b	Q18. b	Q19. c	Q20. c	Q21. c
Q22. b	Q23. b	Q24. c	Q25. d	Q26. b	Q27. c	Q28. c
Q29. b	Q30. b	Q31. b	Q32. d	Q33. c	Q34. b	

Dear math scholars,
We have taken utmost care while preparing this draft. Still chances of human error can't be ruled out.
Please inform us about any Typing error / mistake in this document.
This will help many future learners of Mathematics.

Email ID - **iMathematicia@gmail.com**
WhatsApp @ +91 9650350480 (only **message**)

O.P. GUPTA, ***Math Mentor***
[Maths (Hons.), E & C Engg., ***Indira Award Winner****]*

Follow us on Twitter ***@theopgupta***
Follow us on Instagram ***@theopgupta***
Official Website : ***www.theOPGupta.com***

YouTube.com/MathematiciaByOPGupta

theopgupta.com
THE OPGUPTA

MATHEMATICIA BY O.P. GUPTA

...a name you can bank upon!

To get FREE PDF Materials, join WhatsApp Teachers Group by Clicking on the Logo

If you are a Student, then you may join our Students Group

CLICK HERE FOR CLASSES IX & X

CLICK HERE FOR CLASSES XI & XII

You can add our WhatsApp no. +919650350480 to your Groups also

Feel Safe to **Share this Document** with other math scholars

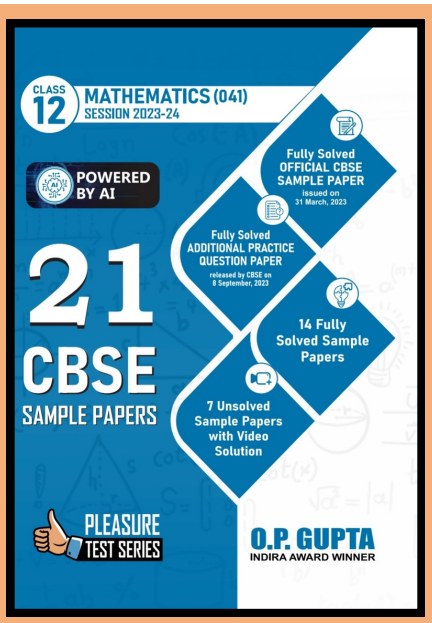
CLICK NOW

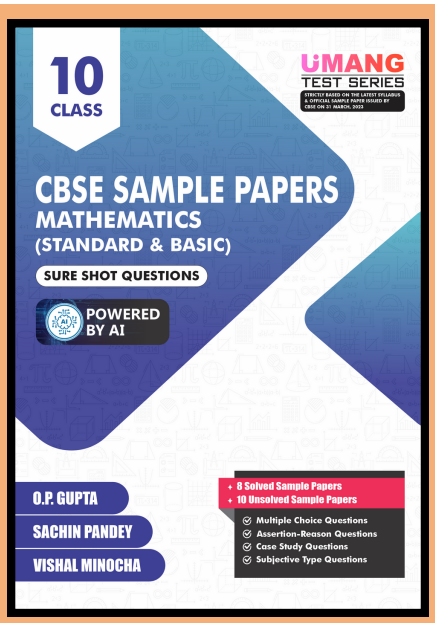
Download

FREE PDF SAMPLE PAPERS FOR THE CLASSES XII, XI & X

or, just type -

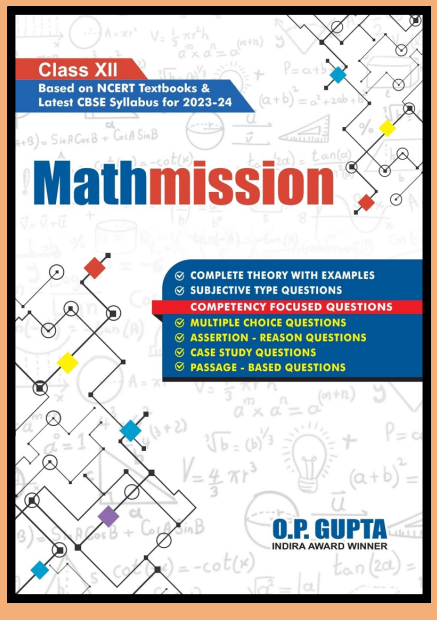
bit.ly/m/theopgupta

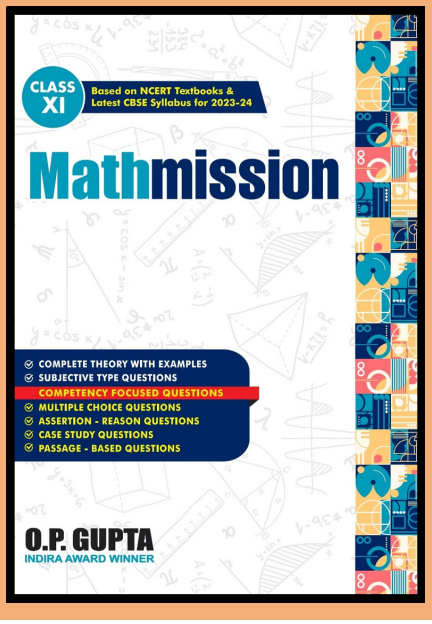


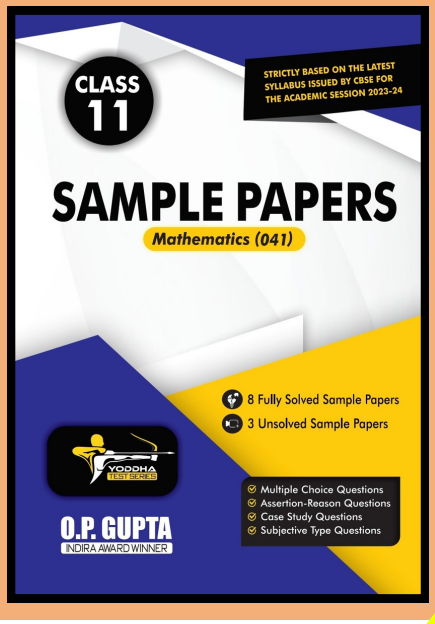


Click on the Image of any Book, to Buy it

Best Seller







Many Direct Questions from our Books have been asked in the recent CBSE Exams

/theopgupta /theopgupta /theopgupta /@theopgupta

For Bulk Orders at Discounted Price, contact on +91-9650350480

Buy our books on amazon Flipkart