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E-Learning Website

UP BOARD • PREVIOUS 10 YEARS' QUESTION PAPERS

Class 10 (High School) Mathematics

All ten years in one book — every paper in full, questions only, as printed in the original papers.

Class 10 (High School)
Subject: Mathematics
Years covered: 2017–2026 | Papers inside: 8 of 10 years
Maximum marks: 70

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Rebuilt in KAMALDNP design for practice. Content identical to the source papers; see Rebuild Notes at the end of each paper. Years not yet found are listed plainly in the Contents — no paper is ever faked.

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Contents

One paper per year, newest first. A year marked “Not found yet” means no complete, verified copy of that year’s paper has been found so far — it will be added when one is verified. 2021 had no board exams.

Year	Set / Code	Exam held	Marks	Page
2026	822 FX	27 February 2026	70	3
2025	822 BV	date not stated in source	70	8
2024	822 HY	27 February 2024	70	13
2023	822 EB	21 February 2023	70	18
2022	822 AY	date not stated in source	70	23
2021	—	No board exams were held (COVID-19)	—	—
2020	—	Not found yet	—	—
2019	822 (set unverified)	16 February 2019	70	27
2018	822 (set unverified)	date not stated in source	70	31
2017	822 (set unverified)	date not stated in source	70	35

Source: third-party transcriptions of the original UP Board papers (no official UP Board previous-year archive exists). English text only; the originals are bilingual (Hindi + English).

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2026

Set 822 FX — 3 hours 15 minutes — Maximum Marks: 70

Exam: 27 February 2026 | Time allowed: 3 hours 15 minutes | Maximum marks: 70 | Total questions: 25

General Instructions

1. All questions are compulsory.
2. This question paper has two sections ‘A’ and ‘B’.
3. Section ‘A’ contains 20 Multiple Choice type Questions of 1 mark each that have to be answered on OMR answer sheet by darkening completely the correct circle with blue or black ballpoint pen.
4. After giving answer on OMR answer sheet, do not cut or use eraser, whitener etc.
5. Section ‘B’ contains descriptive type questions of 50 marks.
6. Total 5 questions are there in this section.
7. In the beginning of each question, it has been mentioned how many parts of it are to be attempted.
8. Marks allotted to each question are mentioned against it.
9. Start from the first question and go up to the last question. Do not waste your time on the question you cannot solve.
10. If you need place for rough work do it on the left page of your answer book and cross (X) the page. Do not write any solution on that page.
11. Draw neat and correct figure in the solution of a question wherever it is necessary, otherwise in its absence the solution will be treated incomplete and wrong.

Section A

Multiple Choice Questions — 1 mark each (to be answered on the OMR answer sheet)

Q. 1 LCM of the numbers 12 and 20 will be: **[1 mark]**

(A) 30 (B) 60 (C) 120 (D) 140

Q. 2 The sum of zeroes of the quadratic polynomial $x^2 + 2x + 5$ will be: **[1 mark]**

(A) 2 (B) −2 (C) 5 (D) −5

Q. 3 In linear equation $x/3 + y/2 = 6$ if $x = 9$ then the value of y will be: **[1 mark]**

(A) 2 (B) 4 (C) 6 (D) 8

Q. 4 The roots of the quadratic equation $x^2 + 5x + 6 = 0$ will be: **[1 mark]**

(A) −3, −2 (B) 3, 2 (C) −3, 2 (D) 3, −2

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Q. 5 The seventeenth term of the A.P. : 3, 8, 13, ... will be: **[1 mark]**

(A) 83 (B) 88 (C) 98 (D) 105

Q. 6 If the points A (6, 1), B (8, 2), C (9, 4) and D (7, 3) are the vertices of a parallelogram, taken in order, the point of intersection of diagonals will be: **[1 mark]**

(A) (15/2, 5/2) (B) (15/2, 5) (C) (7/2, 5) (D) (5, 15/2)

Q. 7 In the following statements, the true statement is: **[1 mark]**

(A) All circles are congruent. (B) All rectangles are similar.
(C) All equilateral triangles are similar. (D) All polygons are similar.

Q. 8 In the above figure, if AD = 2.0 cm, AE = 1.8 cm, EC = 3.6 cm and DE ∥ BC the measure of BD will be: **[1 mark]**

> **Figure:** In △ABC, DE ∥ BC, with AD = 2.0 cm, AE = 1.8 cm and EC = 3.6 cm. (Diagram not reproduced.)

(A) 3.6 cm (B) 4.0 cm (C) 5.4 cm (D) 6.0 cm

Q. 9 In triangle ABC if ∠B = 90°, AB = 5 cm and BC = 12 cm, the value of sin A will be: **[1 mark]**

(A) 5/13 (B) 5/12 (C) 12/13 (D) 13/17

Q. 10 The value of 4 sin 30° cos 60° will be: **[1 mark]**

(A) 1 (B) 1/2 (C) 1/4 (D) 1/8

Q. 11 The value of Tan A + Cot A will be: **[1 mark]**

(A) $\sin^2 A + \cot^2 A$ (B) Sec A Cosec A
(C) Sin A Cos A (D) 1

Q. 12 If tan A = √3, then the value of Sec A will be: **[1 mark]**

(A) 4 (B) 3 (C) 2 (D) 1/2

Q. 13 HCF of the numbers 49 and 91 will be: **[1 mark]**

(A) 7 (B) 9 (C) 11 (D) 13

Q. 14 LCM and HCF of two numbers are 182 and 13 respectively. If one number is 26, then other number will be: **[1 mark]**

(A) 13 (B) 39 (C) 78 (D) 91

Q. 15 Two coins are tossed simultaneously. The probability of getting at least one head is: **[1 mark]**

(A) 1/4 (B) 1/2 (C) 3/4 (D) 1

Q. 16 If the mode of some observations is 20 and mean is 26. The value of their median will be: **[1 mark]**

(A) 26 (B) 24 (C) 20 (D) 30

Q. 17 The angle of a sector of a circle with radius 4 cm is 30°. The area of the sector will be: **[1 mark]**

(A) $4\pi/3$ cm² (B) 3/4 cm² (C) $\pi/4$ cm² (D) 4/9 cm²

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Q. 18 A solid is in the shape of a cone standing on a hemisphere with both their radii being equal to 2 cm and the height of the cone is equal to its radius. The volume of the solid will be: **[1 mark]**

(A) 2π cm^3 (B) 4π cm^3 (C) 6π cm^3 (D) 8π cm^3

Q. 19 The median class of the following frequency distribution will be: **[1 mark]**
Class interval: 0–5, 5–10, 10–15, 15–20, 20–25, 25–30
Frequency: 2, 8, 10, 5, 4, 1

(A) 5–10 (B) 10–15 (C) 15–20 (D) 25–30

Q. 20 The modal class of the following frequency table will be: **[1 mark]**
Class interval: 0–10, 10–20, 20–30, 30–40, 40–50
Frequency: 2, 4, 5, 8, 1

(A) 10–20 (B) 40–50 (C) 0–10 (D) 30–40

Section B

Descriptive Questions — 50 marks

Q. 1 Do all the parts:

Q. 1(a) Prove that $2\sqrt{2}$ is an irrational number. **[2 marks]**

Q. 1(b) Find the distance between the points $(-4, 5)$ and $(2, -3)$. **[2 marks]**

Q. 1(c) In what ratio does the point $(-4, 6)$ divide the line segment joining the points A$(-6, 10)$ and B$(3, -8)$? **[2 marks]**

Q. 1(d) Prove that: $(2\cos^3\theta - \cos\theta) / (\sin\theta - 2\sin^3\theta) = \cot\theta$. **[2 marks]**

Q. 1(e) If an arc of a circle of radius 10.5 cm, subtends an angle of 60° at the centre, then find the length of the arc. **[2 marks]**

Q. 1(f) Find the mode of the following frequency table: **[2 marks]**
Class interval: 10–20, 20–30, 30–40, 40–50, 50–60, 60–70
Frequency: 12, 10, 15, 11, 7, 5

Q. 2 Do any five parts:

Q. 2(a) The two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$. **[4 marks]**

Q. 2(b) In the figure ABCD is a trapezium with AB ∥ DC. E and F are points on non-parallel sides AD and BC respectively such that EF is parallel to AB. Prove that AE/ED = BF/FC. **[4 marks]**

Q. 2(c) A dice is thrown twice. What is the probability that: (i) 6 will not come up either time? (ii) 6 will come up at least once? **[4 marks]**

Q. 2(d) Find the median of the following data: **[4 marks]**
Class interval: 0–5, 5–10, 10–15, 15–20, 20–25, 25–30
Frequency: 2, 3, 8, 15, 14, 8

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Q. 2(e) The first term and the last term of an A.P. are 8 and 341 respectively. If the common difference is 9, then find the number of terms in it and their sum. **[4 marks]**

Q. 2(f) Solve the following pairs of linear equations: $3x - 5y = 4$, $9x = 2y + 7$. **[4 marks]**

Q. 3 The sum of a two-digit number and the number obtained by reversing the digits is 110. If the tens digit of the number is 6 more than the units digit, then find the number. **[6 marks]**

— OR —

OR: The altitude of a right triangle is 35 cm less than its base. If the hypotenuse is 65 cm, find the other two sides.

Q. 4 The angles of depression of the top and the bottom of a 6 m high building from the top of a multi-storeyed building are 30° and 60° respectively. Find the height of the multi-storeyed building and the distance between the two buildings. **[6 marks]**

— OR —

OR: Two poles of equal heights are standing opposite each other on either side of the road, which is 60 m wide. From a point between them on the road, the angles of elevation of the top of the poles are 30° and 60°, respectively. Find the height of the poles and the distances of the point from the poles.

Q. 5 A chord of a circle of radius 14 cm subtends an angle of 60° at the centre. Find the areas of the corresponding minor and major segments of the circle. (Use $\pi = 3.14$, $\sqrt{3} = 1.732$) **[6 marks]**

— OR —

OR: A solid is in the shape of a cone standing on a right circular cylinder with both their radii being equal to 7.5 cm and the height of the cone is equal to its radius. If the total height of the solid is 22.5 cm, find the volume of the solid.

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Rebuild Notes

This paper was rebuilt in KAMALDNP design from a third-party transcription of the original UP Board paper. Questions, order and marks are as printed in the source; answers and solutions are not included. Where the transcription was unclear or contradicted the Hindi original, the point is flagged below.

1. Section B per-part marks (Q1: 2 marks each; Q2: 4 marks each, attempt any 5 of 6; Q3–Q5: 6 marks each) follow the same new-format paper structure as the 822 BV set (2025); 12 + 20 + 18 = 50 = Section B total as printed.
2. Q8 refers to a figure in the printed paper; a figure note is printed instead.
3. Q12: the source PDF prints “tan A = 3”, but its own solution works with tan A = √3 (tan 60° = √3, sec 60° = 2); corrected to √3.
4. Q17: the source PDF prints option (a) as π/3 cm², but its own solution computes the area as 16π/12 = 4π/3 cm²; corrected to 4π/3 cm².
5. Q5: the “(Use π = 3.14, √3 = 1.732)” note belongs to the minor/major segment question (the √3 is needed for the triangle area), not to the OR alternative.
6. Exam date (27 February 2026) is from the Zollege article; the clock time is not stated in the source, so no time is printed on the paper.
7. No second transcription of the 822 FX set was found (PYQ Vault 2026 Maths is the different set 822 GA); verification is by internal completeness and the marks sum only.

Source (third-party transcription): https://static.zollege.in/public/image/UP_Board_Class_10_Mathematics_2026_Question_Paper_with_Solution_PDF_2__ebdf7cadf6bc2f1b651f9c29a1904d98.p

English text only. The original paper is bilingual (Hindi + English); a Hindi side is a follow-up round, not this one. No official UP Board previous-year archive exists, so every paper in this volume is third-party-source.

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2025

Set 822 BV — 3 hours — Maximum Marks: 70

Time allowed: 3 hours | Maximum marks: 70 | Total questions: 25

General Instructions

1. All questions are compulsory.
2. This question paper has two sections 'A' and 'B'.
3. Section 'A' contains 20 Multiple Choice type Questions of 1 mark each that have to be answered on OMR answer sheet by darkening completely the correct circle with blue or black ballpoint pen.
4. After giving answer on OMR answer sheet, do not cut or use eraser, whitener etc.
5. Section 'B' contains descriptive type questions of 50 marks.
6. Total 5 questions are there in this section.
7. In the beginning of each question, it has been mentioned how many parts of it are to be attempted.
8. Marks allotted to each question are mentioned against it.
9. Start from the first question and go up to the last question. Do not waste your time on the question you cannot solve.
10. If you need place for rough work do it on the left page of your answer book and cross (X) the page. Do not write any solution on that page.
11. Draw neat and correct figure in the solution of a question wherever it is necessary, otherwise in its absence the solution will be treated incomplete and wrong.

Section A

Multiple Choice Questions — 1 mark each (to be answered on the OMR answer sheet)

Q. 1 The sum of a rational number and an irrational number will be: **[1 mark]**

(A) Rational number
(B) Natural number
(C) Whole number
(D) Irrational number

Q. 2 The prime factorization of the number 156 will be: **[1 mark]**

(A) $2 \times 3 \times 13$ (B) $2^2 \times 3 \times 13$ (C) $2^2 \times 3 \times 11$ (D) $2 \times 3^2 \times 13$

Q. 3 If $(3x + 5y)/(3x - 5y) = 7/3$, then the value of x : y will be: **[1 mark]**

(A) 25 : 6 (B) 5 : 3 (C) 3 : 5 (D) 7 : 3

Q. 4 The discriminant of the equation $3x^2 - 2x + 1/3 = 0$ will be: **[1 mark]**

(A) 0 (B) 1 (C) 2 (D) 3

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Q. 5 The mean of the following table will be: **[1 mark]**

Class-Interval: 2–4, 4–6, 6–8, 8–10, 10–12

Frequency: 2, 4, 7, 3, 4

(A) 6.0 (B) 6.3 (C) 7.0 (D) 7.3

Q. 6 In △ABC, DE ∥ BC such that AD = 1.5 cm, DB = 3 cm and AE = 2 cm. The measure of AC will be: **[1 mark]**

(A) 6.0 cm (B) 4.5 cm (C) 4.0 cm (D) 3.0 cm

Q. 7 The distance between the points (2, 3) and (4, 1) will be: **[1 mark]**

(A) 2 units (B) 2√2 units (C) √2 units (D) 3 units

Q. 8 If the roots of the quadratic equation $3x^2 - 12x + m = 0$ are equal, then the value of m will be: **[1 mark]**

(A) 4 (B) 6 (C) 12 (D) 14

Q. 9 The HCF of 15 and 25 is 5, so their LCM will be: **[1 mark]**

(A) 150 (B) 75 (C) 125 (D) 100

Q. 10 For the A.P. 3, 1, −1, −3, ..., the common difference will be: **[1 mark]**

(A) −2 (B) 1 (C) 2 (D) 5

Q. 11 The median class of the following table will be: **[1 mark]**

Class-Interval: 0–5, 5–10, 10–15, 15–20, 20–25

Frequency: 2, 7, 3, 10, 4

(A) 0–5 (B) 5–10 (C) 10–15 (D) 15–20

Q. 12 If tan A = 1, then the value of 2 sin A cos A will be: **[1 mark]**

(A) 0 (B) 1/2 (C) 1 (D) 2

Q. 13 From a point Q, 25 cm away from the center of a circle, the length of the tangent to the circle is 24 cm. The radius of the circle will be: **[1 mark]**

(A) 7 cm (B) 12 cm (C) 15 cm (D) 24.5 cm

Q. 14 The height of a tower is 20 m. The length of its shadow formed on the ground is 20√3 m; the value of the angle of elevation will be: **[1 mark]**

(A) 30° (B) 45° (C) 60° (D) 90°

Q. 15 An arc of a circle of radius 14 cm subtends an angle of 30° at its center. The area of the corresponding sector will be: **[1 mark]**

(A) 55/3 cm² (B) 77/3 cm² (C) 154/3 cm² (D) 165/3 cm²

Q. 16 The shape of a joker's cap is: **[1 mark]**

(A) Cylindrical (B) Conical (C) Triangular (D) Rectangular

Q. 17 The assumed mean method and the step-deviation method are simplified forms of: **[1 mark]**

(A) Indirect method (B) Direct method

(C) Combined method (D) Simple method

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Q. 18 If the mean of some observations is 15 and the median is 24, then the mode will be: **[1 mark]**

(A) 49 (B) 47 (C) 46 (D) 42

Q. 19 When a die is thrown once, the probability of getting an even number will be: **[1 mark]**

(A) 2/3 (B) 1/2 (C) 1/6 (D) 1/3

Q. 20 From a well-shuffled deck of 52 cards, if one card is drawn at random, the probability of the card being a queen will be: **[1 mark]**

(A) 1/4 (B) 1/13 (C) 1/26 (D) 1/52

Section B

Descriptive Questions — 50 marks

Question 1 — Do All Parts (2 marks each)

Q. 1(a) The height and the diameter of the base of a right circular cone are 48 cm and 28 cm respectively. Find the volume of the cone. **[2 marks]**

Q. 1(b) Find the HCF of the 96 & 404 by the prime factorization method. **[2 marks]**

Q. 1(c) Find the co-ordinates of the point dividing the line segment joining the points (–1, 7) and (4, –3) in the ratio 2 : 3. **[2 marks]**

Q. 1(d) If $\sin \alpha = 1/2$ and $\cos \beta = 1/2$, then find the value of $(\alpha + \beta)$. **[2 marks]**

Q. 1(e) Find the distance of point P (–6, 8) from the origin. **[2 marks]**

Q. 1(f) Prove : $(\cot A - \cos A)/(\cot A + \cos A) = (\csc A - 1)/(\csc A + 1)$. **[2 marks]**

Question 2 — Do Any 5 Parts (4 marks each)

Q. 2(a) The 17th term of an A.P. exceeds its 10th term by 7. Find the common difference. **[4 marks]**

Q. 2(b) Find the roots of the equation $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$. **[4 marks]**

Q. 2(c) D is a point on the side BC of a triangle ABC such that $\angle ADC = \angle BAC$. Prove that $CA^2 = CB \times CD$. **[4 marks]**

Q. 2(d) A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC. **[4 marks]**

Q. 2(e) If the median of given frequency distribution is 28.5, then find the value of ‘x’ and ‘y’. (Given n = 60) **[4 marks]**

Class interval: 0–10, 10–20, 20–30, 30–40, 40–50, 50–60

Frequency: 5, x, 20, 15, y, 5

Q. 2(f) 12 defective pens are accidentally mixed with 132 good ones. It is not possible to just look at a pen and tell whether it is defective or not. One pen is taken out at random from this lot. Determine the probability that the pen taken out is a good one. **[4 marks]**

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Question 3 (6 marks)

Q. 3 A fraction becomes 1/3 when 1 is subtracted from the numerator and it becomes 1/4 when 8 is added to its denominator. Find the fraction. **[6 marks]**

— OR —

OR: A plane left 30 minutes later than the scheduled time and in order to reach its destination 1500 km away on time, it has to increase its speed 250 km/hr from its usual speed. Find the usual speed of the plane.

Question 4 (6 marks)

Q. 4 Two poles of same height are standing on either side of the road, which is 80 m wide. From a point between them on the road, the angles of elevation of the top of the poles are 60° and 30° respectively. Find the height of the poles and distance of the point from the poles. **[6 marks]**

— OR —

OR: From a point on the ground, the angles of elevation of the bottom and the top of the tower fixed on a 20 m high building are 45° and 60° respectively. Find the height of the tower.

Question 5 (6 marks)

Q. 5 A wooden toy was made by scooping out a hemisphere from each end of a solid cylinder as shown in the figure. If the height of the cylinder is 10 cm and its base is of radius 3.5 cm, find the total surface area of the toy. (Use π = 22/7) **[6 marks]**

> **Figure:** Diagram of the wooden toy (cylinder with a hemisphere scooped out from each end). (Diagram not reproduced.)

— OR —

OR: A solid is in the shape of a cone standing on a hemisphere, the radii of the cone and hemisphere are equal and its measure is 3 cm. If the height of the solid is 6 cm, then find the volume of the solid.

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2. Q5 refers to a figure of the wooden toy, which was an image in the source — a figure note is printed instead.
3. Exam date: the source PDF does not state the 2025 Mathematics exam date, so no date is printed on the paper.

Source (third-party transcription): https://image-static.collegedunia.com/public/image/UP_Board_Class_10_Mathematics_822_BV_2025_019381c56ea71fcc16aee6fb26c1217f.pdf

Cross-checked against: https://collegedunia.com/articles/e-911-up-board-class-10-mathematics-question-paper-with-solutions-pdf-2025-code-822-bv

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2024

Set 822 HY — 3 hours 15 minutes — Maximum Marks: 70

Exam: 27 February 2024 | Time allowed: 3 hours 15 minutes | Maximum marks: 70 | Total questions: 25

General Instructions

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2. This question paper has two sections ‘A’ and ‘B’.
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Section A

Multiple Choice Questions — 1 mark each (to be answered on the OMR answer sheet)

Q. 1 The sum of the zeros of the polynomial $3x^2 + 5x + 2$ will be: **[1 mark]**

(A) $-5/2$ (B) $-5/3$ (C) -5 (D) 6

Q. 2 There will be no solution of the equations $2x + ay = 1$ and $3x - 5y = 7$ if the value of a is: **[1 mark]**

(A) $-3/10$ (B) $3/10$ (C) $-10/3$ (D) $10/3$

Q. 3 The nature of roots of the equation $2x^2 + 5x + 4 = 0$ will be: **[1 mark]**

(A) Rational and equal (B) Irrational
(C) Rational and unequal (D) Not real

Q. 4 The 10th term from the end of the A.P. 4, 9, 14, . . . , 254 will be: **[1 mark]**

(A) 208 (B) 204 (C) 209 (D) 214

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Q. 5 In the figure, there is a pair of similar triangles. Its correct symbolic expression will be: **[1 mark]**

> **Figure:** a pair of similar triangles. (Diagram not reproduced.)

(A) △ABC ~ △DEF (B) △ABC ~ △EFD (C) △ABC ~ △EDF (D) All of these

Q. 6 Distance of the point (−3, −4) from the origin will be: **[1 mark]**

(A) −3 (B) −4 (C) 5 (D) 6

Q. 7 If cot A = 3/4, then the value of sec A will be: **[1 mark]**

(A) 4/3 (B) 5/4 (C) 3/5 (D) 5/3

Q. 8 If tan α = sin α, then the value of α will be: **[1 mark]**

(A) 0° (B) 45° (C) 60° (D) 90°

Q. 9 If the ratio of the length of a rod and its shadow is 1 : √3, the elevation angle of the sun will be: **[1 mark]**

(A) 30° (B) 45° (C) 60° (D) 90°

Q. 10 Number of parallel tangent lines drawn to the end points of the diameter of a circle will be: **[1 mark]**

(A) 0 (B) 1 (C) 2 (D) Infinite

Q. 11 The area of the sector of a circle whose angle is 60° and radius 12 cm will be: **[1 mark]**

(A) 18π cm² (B) 20π cm² (C) 24π cm² (D) 30π cm²

Q. 12 If the diameter of a sphere is d, then its volume will be: **[1 mark]**

(A) πd³/3 (B) πd³/24 (C) 4πd³/3 (D) πd³/6

Q. 13 Total surface area of a solid hemisphere with radius r will be: **[1 mark]**

(A) 2/3 πr² (B) 2πr² (C) 3πr² (D) 4πr²

Q. 14 The median class of the following frequency table will be: **[1 mark]**

Class Interval: 0–5, 5–10, 10–15, 15–20, 20–25
Frequency: 4, 6, 5, 8, 2

(A) 0–5 (B) 5–10 (C) 10–15 (D) 15–20

Q. 15 The mean and median of a frequency table are 27 and 29 respectively. Then its mode will be: **[1 mark]**

(A) 28 (B) 31 (C) 33 (D) 35

Q. 16 The mean of the following table will be: **[1 mark]**

Class Interval: 0–10, 10–20, 20–30, 30–40
Frequency: 2, 1, 4, 3

(A) 21 (B) 23 (C) 25 (D) 26

Q. 17 The probability of 53 Mondays in a leap year will be: **[1 mark]**

(A) 6/7 (B) 5/7 (C) 2/7 (D) 1/7

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Q. 18 Two friends were born in 2020. Find the probability that the date of birth of both of them will be the same. **[1 mark]**

(A) 1/365 (B) 1/366 (C) 2/365 (D) 2/366

Q. 19 The distance between the two points (2, 3) and (4, 1) will be: **[1 mark]**

(A) 2 (B) 3 (C) 2√2 (D) 2√3

Q. 20 Irrational number in the following will be: **[1 mark]**

(A) √25 (B) √81 (C) 5/3 (D) 5 + √2

Section B

Descriptive Questions — 50 marks

Q. 1 Do all the parts:

Q. 1(a) If the difference of two numbers is 26 and one number is three times the other, then find the numbers. **[2 marks]**

Q. 1(b) If cot 2A = tan(A − 22°), where 2A is an acute angle, then find the value of A. **[2 marks]**

Q. 1(c) Prove that √2 is an irrational number. **[2 marks]**

Q. 1(d) Find the median of the following table: **[2 marks]**
Class Interval: 0–10, 10–20, 20–30, 30–40, 40–50, 50–60
Frequency: 7, 8, 5, 20, 13, 7

Q. 1(e) Find the roots of the quadratic equation $4x^2 + 9x + 5 = 0$. **[2 marks]**

Q. 1(f) Find the volume of a copper rod of length 8 cm whose diameter is 1 cm. **[2 marks]**

Q. 2 Do any five parts:

Q. 2(a) If the sum of the first m terms of an A.P. is n and the sum of the first n terms of the A.P. is m, then find the sum of (m + n) terms. **[4 marks]**

Q. 2(b) Prove that the angle between the tangents drawn from an external point to a circle is supplementary to the angle formed by the line joining the points of contact of tangents at the center of the circle. **[4 marks]**

Q. 2(c) In what ratio does the point (−4, 6) divide the line segment joining the points A(−6, 10) and B(3, −8)? **[4 marks]**

Q. 2(d) Find the mode of the following frequency table: **[4 marks]**
Class Interval: 0–20, 20–40, 40–60, 60–80, 80–100, 100–120, 120–140
Frequency: 6, 8, 10, 12, 6, 5, 3

Q. 2(e) Find the roots of the quadratic equation $3x^2 - 2\sqrt{6}x + 2 = 0$. **[4 marks]**

Q. 2(f) (i) Find the LCM of 867 and 255. (ii) Find the HCF of 867 and 255. **[4 marks]**

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Q. 3 In the figure, AO/OC = BO/OD = 1/2 and AB = 5 cm, then find the value of DC. **[6 marks]**

> **Figure:** Trapezium ABCD with AB = 5 cm and diagonals AC and BD intersecting at O. (Diagram not reproduced.)

— OR —

OR: Prove that the tangents drawn from an external point to a circle are equal.

Q. 4 Prove that (cosec A − sin A)(sec A − cos A) = 1/(tan A + cot A). **[6 marks]**

— OR —

OR: The angle of elevation of the top of a tower from the top of a house whose height is 15 meters is 30°. Also, the angle of elevation of the top of the tower from the ground of the same house is 60°. Then, find the height of the tower and the distance of the tower from the house.

Q. 5 Both the ends of a metallic solid cylinder are semi-spherical. Its total height is 19 cm and the diameter of the cylinder is 7 cm. Find the weight of the solid if the weight of 1 cm^3 of the metal is 4.5 g. **[6 marks]**

— OR —

OR: A chord of a circle of radius 15 cm subtends an angle of 60° at the center of the circle. Find the area of the corresponding minor segment. (Given: π = 3.14, √3 = 1.73)

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Rebuild Notes

This paper was rebuilt in KAMALDNP design from a third-party transcription of the original UP Board paper. Questions, order and marks are as printed in the source; answers and solutions are not included. Where the transcription was unclear or contradicted the Hindi original, the point is flagged below.

1. Section B per-part marks (Q1: 2 marks each; Q2: 4 marks each, attempt any 5 of 6; Q3–Q5: 6 marks each) follow the same new-format paper structure as the 822 BV set (2025); 12 + 20 + 18 = 50 = Section B total as printed.
2. Q2, Q7, Q12, Q17, Q18 and Q19: the fractions in the options were flattened in the text extract; each was verified visually from the source PDF pages (Q2 p.2, Q7 p.7, Q12 p.11, Q17–Q18 p.15, Q19 p.16) and the correct values are printed.
3. Q3: the extract flattened the ratios to “OC = OD = 12”; corrected to AO/OC = BO/OD = 1/2 and verified visually from the source PDF p.26, which also shows the trapezium figure (a figure note is printed instead).
4. Q4: the extract flattened the right-hand side to “tan A + cot A”; corrected to 1/(tan A + cot A), confirmed by the source solution’s working.
5. Q5 refers to a figure in the printed paper; a figure note is printed instead.
6. Q20 was verified visually from the source PDF p.17.
7. Exam date (27 February 2024) is from the Zollege/Collegedunia articles; the clock time is not stated in the source, so no time is printed on the paper.
8. Cross-check: the InfinityLearn 2024 Maths paper is the different set 822 IA (same format, same Q1/Q2 structure) — used for pattern corroboration only.

Source (third-party transcription): https://static.zollege.in/public/image/UP_board_Class_10_Mathematics_Code_822_HY_2024_1__572ff075c65c17fe3c622a66065cf77f.pdf

Cross-checked against: https://infinitylearn.com/surge/wp-content/uploads/securepdfs/2025/03/UP-Board-Class-10-Previous-Year-Question-Papers_Maths_Uttar-Pradesh_2024.pdf

English text only. The original paper is bilingual (Hindi + English); a Hindi side is a follow-up round, not this one. No official UP Board previous-year archive exists, so every paper in this volume is third-party-source.

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2023

Set 822 EB — 3 hours 15 minutes — Maximum Marks: 70

Exam: 21 February 2023, 8:00 AM – 11:15 AM | Time allowed: 3 hours 15 minutes | Maximum marks: 70 | Total questions: 25

General Instructions

1. All questions are compulsory.
2. This question paper has two sections ‘A’ and ‘B’.
3. Section ‘A’ contains 20 Multiple Choice type Questions of 1 mark each that have to be answered on OMR answer sheet by darkening completely the correct circle with blue or black ballpoint pen.
4. After giving answer on OMR answer sheet, do not cut or use eraser, whitener etc.
5. Section ‘B’ contains descriptive type questions of 50 marks.
6. Total 5 questions are there in this section.
7. In the beginning of each question, it has been mentioned how many parts of it are to be attempted.
8. Marks allotted to each question are mentioned against it.
9. Start from the first question and go up to the last question. Do not waste your time on the question you cannot solve.
10. If you need place for rough work do it on the left page of your answer book and cross (X) the page. Do not write any solution on that page.
11. Draw neat and correct figure in the solution of a question wherever it is necessary, otherwise in its absence the solution will be treated incomplete and wrong.

Section A

Multiple Choice Questions — 1 mark each (to be answered on the OMR answer sheet)

Q. 1 Which one is a pair of co-prime numbers? **[1 mark]**

(A) (18, 25) (B) (5, 15) (C) (7, 21) (D) (31, 93)

Q. 2 The sum of the powers of prime factors in prime factorization of 144 is: **[1 mark]**

(A) 5 (B) 6 (C) 7 (D) 8

Q. 3 For what value of ‘m’, pair of equations $x - 2y = 3$ and $3x + my = 1$ will have a unique solution? **[1 mark]**

(A) $m = -6$ (B) $m = 0$ only (C) $m \neq -6$ (D) $m \neq 0$

Q. 4 The solution of $2x + 3y = 18$; $x - 2y = 2$ will be: **[1 mark]**

(A) $x = 6, y = 2$ (B) $x = 3, y = 4$ (C) $x = 3, y = 8$ (D) $x = 0, y = 6$

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Q. 5 For which value of k, there will be an infinite number of solutions for the pair of linear equations $x + ky = 1$ and $kx + y = k^2$? **[1 mark]**

(A) +1 (B) ±1 (C) −1 (D) 5

Q. 6 If $1/(x^2 - 2) = 1/7$, then the value of x will be: **[1 mark]**

(A) ±2 (B) ±1 (C) ±3 (D) ±5

Q. 7 The centre (2, −3) of a circle has diameter as AB. The coordinate of B is (1, 4). The coordinate of A will be: **[1 mark]**

(A) (3, 10) (B) (10, 3) (C) (−10, 3) (D) (3, −10)

Q. 8 If roots of the equation $3x^2 - 12x + k = 0$ are equal, then the value of k will be: **[1 mark]**

(A) 12 (B) 4 (C) 7 (D) 9

Q. 9 Two figures whose shapes are same but the dimensions are not essentially same are called: **[1 mark]**

(A) equal figures (B) similar figures
(C) symmetrical figures (D) congruent figures

Q. 10 If the corresponding sides of two similar triangles are in the ratio 3:5, the ratio of their areas will be: **[1 mark]**

(A) 9:25 (B) 6:10 (C) 3:5 (D) 25:9

Q. 11 If the sides of a triangle are 3 cm, 4 cm and 5 cm, then the triangle will be: **[1 mark]**

(A) right angle triangle (B) acute angle triangle
(C) obtuse angle triangle (D) triangle is not possible

Q. 12 The perimeter of two similar triangles are 10 cm and 15 cm respectively, find the ratio of their areas. **[1 mark]**

(A) 3:4 (B) 4:9 (C) 3:2 (D) 2:1

Q. 13 If $\tan\theta = 8/15$, then the value of $\csc\theta$ will be: **[1 mark]**

(A) 17/8 (B) $\sqrt{17}$ (C) 4/3 (D) 15/17

Q. 14 If $2\cos 3\theta = 1$, then the value of θ will be: **[1 mark]**

(A) 10° (B) 15° (C) 20° (D) 25°

Q. 15 The circumferences of two circles are in the ratio 3:2, then the ratio of their areas will be: **[1 mark]**

(A) 7:9 (B) 4:9 (C) 2:3 (D) 9:4

Q. 16 If two hemispheres of equal radius r are joined by their bases, then the curved surface area of this new solid will be: **[1 mark]**

(A) $4\pi r^2$ (B) $8\pi r^2$ (C) $6\pi r^2$ (D) $2\pi r^2$

Q. 17 Which one of the following is not a measure of central tendency? **[1 mark]**

(A) Mean (B) Median
(C) Mode (D) Standard deviation

Q. 18 The arithmetic mean of natural numbers 1 to 9 will be: **[1 mark]**

(A) 5 (B) 4 (C) 3 (D) 6

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Q. 19 In a given frequency distribution, if the mean is 15 and the median is 16, then its mode will be: **[1 mark]**

(A) 16 (B) 18 (C) 15 (D) 17

Q. 20 Median of the first 10 natural numbers will be: **[1 mark]**

(A) 5 (B) 5.2 (C) 5.4 (D) 5.5

Section B

Descriptive Questions — 50 marks

Q. 1 Do all the parts:

Q. 1(a) Prove that $5 + \sqrt{3}$ is an irrational number. **[2 marks]**

Q. 1(b) If $\cos A = 2/3$, then find the value of $\sin 2A$. **[2 marks]**

Q. 1(c) Prove that the twice of the volume of a cylinder is equal to the product of its radius of base and curved surface. **[2 marks]**

Q. 1(d) Find the median of the following data: **[2 marks]**
Class Interval: 0–10, 10–20, 20–30, 30–40, 40–50
Frequency: 2, 8, 30, 15, 5

Q. 1(e) Find the coordinates of the point which divides the line segment formed by joining the points $(-1, 7)$ and $(4, -3)$ in the ratio 2 : 3. **[2 marks]**

Q. 1(f) For what value of K, points $(K, -1)$, $(2, 1)$, and $(4, 5)$ will be on the same line? **[2 marks]**

Q. 2 Do any five parts:

Q. 2(a) Show through graphical method that the linear equation system $3x - y = 2$ and $9x - 3y = 6$ have infinite number of solutions. **[4 marks]**

Q. 2(b) The sum of the digits of a two-digit number is 9. If the digits of the number are interchanged, then the new number will exceed the original number by 27. Find the number. **[4 marks]**

Q. 2(c) Construct $\triangle ABC$ in which $BC = 6$ cm, $AB = 3$ cm, and $\angle ABC = 45°$. Construct a similar triangle $A'B'C'$ whose corresponding sides are 3/4 of the sides of $\triangle ABC$. Write the steps of construction in brief. **[4 marks]**

Q. 2(d) In the figure, if $BD \perp AC$ and $CE \perp AB$, prove that $\triangle AEC \sim \triangle ADB$. **[4 marks]**

> **Figure:** $\triangle ABC$ with $BD \perp AC$ and $CE \perp AB$. (Diagram not reproduced.)

Q. 2(e) Find the arithmetic mean from the following frequency table: **[4 marks]**
Class interval: 0–10, 10–20, 20–30, 30–40, 40–50
Frequency: 5, 12, 25, 10, 8

Q. 2(f) Find the mode of the following data: **[4 marks]**
Class interval: 1–3, 3–5, 5–7, 7–9, 9–11
Frequency: 7, 8, 2, 2, 1

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Q. 3 Solve the following pair of equations by converting these into linear pair of equations: 1/(2x) − 1/(3y) = 2; 1/(3x) + 1/(2y) = 13/16. **[6 marks]**

— OR —

OR: Sum of areas of two squares is 117 m². If the difference between their perimeters is 12 m, then find the sides of both the squares.

Q. 4 From the top of a tower 60 meters high, the angles of depression of top and bottom of a building (house) are 45° and 60° respectively. Find the height of the building and its distance from the tower. **[6 marks]**

— OR —

OR: Two poles of equal height are placed opposite to each other on either side of a road 80 meters wide. From a point on the road between these two poles, the angles of elevation of the top of the poles are 60° and 30° respectively. Find the height of the poles and the distance from the point from the poles.

Q. 5 A well of 3 meter in diameter is dug to a depth of 14 meter. An embankment is made by spreading the soil out of it, making a circular ring of 4 meters wide, evenly around the well. Find the height of the embankment. **[6 marks]**

— OR —

OR: A hollow sphere whose inner and outer diameters are 4 cm and 8 cm respectively is melted to form a cone whose base is 8 cm in diameter. Find the slant height and curved surface area of the cone.

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Rebuild Notes

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1. The Collegedunia header says “Maximum Marks: 100” — wrong; the printed total is 70 (20 + 50), confirmed by the InfinityLearn scan of the same set, which says “M.M-70”.
2. Cross-checked against the InfinityLearn scan of the same set 822 EB (Q1 identical; Section B Q1–Q2 identical). The InfinityLearn scan’s Section B Q3–Q5 are not usable as a cross-check (numbered construction steps hijack the question numbering in its text layer).
3. Section B per-part marks (Q1: 2 marks each; Q2: 4 marks each, attempt any 5 of 6; Q3–Q5: 6 marks each) follow the same new-format paper structure as the 822 BV set (2025); 12 + 20 + 18 = 50 = Section B total as printed.
4. Q6: the extract flattened the fraction to “x21−2 = 17”; corrected to $1/(x^2 - 2) = 1/7$, confirmed by the source solution’s cross-multiplication.
5. Q13: the extract flattened “tan θ = 8/15”; corrected from the source solution (opposite 8, adjacent 15, hypotenuse 17, csc θ = 17/8).
6. Q3: the equations $1/(2x) - 1/(3y) = 2$ and $1/(3x) + 1/(2y) = 13/16$ are confirmed by BOTH sources (Collegedunia and the InfinityLearn scan), even though they give messy numbers.
7. Q2(d) refers to a figure in the printed paper; a figure note is printed instead.
8. Exam date and time (21 February 2023, 8:00 AM – 11:15 AM, morning shift) are from the UPMSP 2023 date sheet as reported by BYJU’S, Times of India, JagranJosh and others.

Source (third-party transcription): https://image-static.collegedunia.com/public/image/UP_Board_Class_10_Mathematics_822_EB_2023_Question_Paper_with_Solutions_088e376cd3d042e535f87e7f945571f5

Cross-checked against: https://infinitylearn.com/surge/wp-content/uploads/securepdfs/2025/03/UP-Board-Class-10-Previous-Year-Question-Papers_Maths_Uttar-Pradesh_2023.pdf

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2022

Set 822 AY — 3¾ hours — Maximum Marks: 70

Time allowed: 3¾ hours | Maximum marks: 70 | Total questions: 7

General Instructions

1. There are seven questions in all in this question paper.
2. All questions are compulsory.
3. In the beginning of each question, it has been clearly mentioned that how many parts of it are to be attempted.
4. Marks allotted to each question are mentioned against it.
5. Start from the first question and go up to the last question. Do not waste your time on the question you cannot solve.
6. Write the solution on the pages of both sides of answer-book. Write the steps of solutions of all questions except Question No. 1.
7. If you need place for rough work, do it on left page of your answer-book and cross (X) that page. Do not write any solution on that page.

Questions

Q. 1 Do all the parts:

Q. 1(a) For any positive integer p, every positive odd integer will be of the form **[1 mark]**

(A) p (B) p + 1 (C) 2p (D) 2p + 1

Q. 1(b) The points A(−4, 0), B(4, 0) and C(0, 3) are the vertices of a triangle. That triangle will be **[1 mark]**

(A) Right angled triangle (B) Isosceles triangle
(C) Equilateral triangle (D) Scalene triangle

Q. 1(c) The areas of two similar triangles are 20 cm² and 45 cm² respectively. The ratio of their heights will be **[1 mark]**

(A) 20 : 45 (B) 9 : 4 (C) 2 : 3 (D) 4 : 9

Q. 1(d) If $\tan\theta = 2ab/(a^2 - b^2)$, the value of $\cos\theta$ will be **[1 mark]**

(A) $(a^2 - b^2)/(a^2 + b^2)$ (B) $(a^2 + b^2)/(a^2 - b^2)$
(C) $2ab/(a^2 + b^2)$ (D) $2ab/(a^2 - b^2)$

Q. 1(e) The length of minute hand of a clock is 14 cm. The area swept by minute hand in one minute will be **[1 mark]**

(A) 10.26 cm² (B) 10.50 cm² (C) 10.75 cm² (D) 11.0 cm²

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Q. 1(f) For a frequency distribution, the relation between mean, median and mode is **[1 mark]**

(A) Mode = 3 Mean − 2 Median (B) Mode = 2 Median − 3 Mean

(C) Mode = 3 Median − 2 Mean (D) Mode = 3 Median + 2 Mean

Q. 2 Do all the parts:

Q. 2(a) In the figure, PS/SQ = PT/TR and ∠PST = ∠PRQ. Prove that △PQR is an isosceles triangle. **[1 mark]**

> **Figure:** △PQR with points S on PQ and T on PR. (Diagram not reproduced.)

Q. 2(b) Find the value of $(5\cos^2 60° + 4\sec^2 30° - \tan^2 45°) / (\sin^2 30° + \cos^2 30°)$. **[1 mark]**

Q. 2(c) Two cubes each of volume 64 cm^3 are joined end to end. Find the surface area of the resulting cuboid. **[1 mark]**

Q. 2(d) The daily incomes of 50 workers of a factory are given in the following table: **[1 mark]**
Daily income (in Rs.): 100–120, 120–140, 140–160, 160–180, 180–200
Number of workers: 12, 14, 8, 6, 10
Find the lower limit and upper limit of the modal class.

Q. 3 Do all the parts:

Q. 3(a) Prove that $\sqrt{2}$ is an irrational number. **[2 marks]**

Q. 3(b) Solve the following system of equations by elimination method: $x/2 + 2y/3 + 1 = 0$, $x - y/3 = 3$. **[2 marks]**

Q. 3(c) Find the ratio in which x-axis divides the line segment joining the points A(−4, −3) and B(5, 2). **[2 marks]**

Q. 3(d) Two solid right circular cones have the same height. The radii of their bases are r_1 and r_2. They are melted and re-cast into a cylinder of same height. Show that the radius of the base of the cylinder is $\sqrt{((r_1^2 + r_2^2)/3)}$. **[2 marks]**

Q. 4 Do all the parts:

Q. 4(a) Without performing the long division procedure show that the rational number 1351/1250 is terminating decimal. **[2 marks]**

Q. 4(b) Find the roots of quadratic equation $3x^2 - 2\sqrt{6}x + 2 = 0$ by factorization method. **[2 marks]**

Q. 4(c) If the points (a, 0), (0, b) and (1, 1) are collinear, prove that 1/a + 1/b = 1. **[2 marks]**

Q. 4(d) In the figure, O is the centre of a circle. If PQ = 24 cm and PR = 7 cm, find the area of shaded portion. **[2 marks]**

> **Figure:** O is the centre of a circle, PQ = 24 cm and PR = 7 cm. (Diagram not reproduced.)

Q. 5 Do all the parts:

Q. 5(a) Show by graphical method that system of linear equations 2x + 4y = 10 and 3x + 6y = 12 has no solution. **[4 marks]**

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Q. 5(b) Draw a triangle ABC in which BC = 7 cm, ∠B = 45° and ∠A = 105°. **[4 marks]**
Construct a triangle, similar to triangle ABC, whose sides are 3/4 times of the corresponding sides of △ABC.

Q. 5(c) (i) Prove that tan 35° tan 40° tan 45° tan 50° tan 55° = 1. (ii) In △ABC, prove **[4 marks]**
that tan((B+C)/2) = cot(A/2).

Q. 5(d) If the arithmetic mean of the following given table is 25, find the missing **[4 marks]**
frequency:
Class interval: 0–10, 10–20, 20–30, 30–40, 40–50
Frequency: 6, f, 6, 10, 5

Q. 6 Do all the parts:

Q. 6(a) Determine the positive value of k for which the equations $x^2 + kx + 64 = 0$ **[4 marks]**
and $x^2 - 8x + k = 0$ will have both real roots.

Q. 6(b) A man standing on the deck of a ship, 14 metre above water level, observes **[4 marks]**
the angle of elevation of the top of a hill as 60° and the angle of depression of the base of the hill as 30°. Find the height of the hill and distance of the hill from the ship. (Given √3 = 1.732)

Q. 6(c) A solid toy is in the shape of a hemisphere surmounted by a right circular **[4 marks]**
cone. Height of this cone is 2 cm and the diameter of the base is 4 cm. Find the volume of this toy. If a right circular cylinder circumscribes the toy, find the difference of volumes of the cylinder and toy. (Take π = 3.14)

Q. 6(d) The marks obtained by the students of a class in Mathematics are as **[4 marks]**
following:
Marks obtained: 0–10, 10–20, 20–30, 30–40, 40–50, 50–60, 60–70
No. of students: 2, 10, 12, 15, 13, 8, 4
Find the median.

Q. 7 Do all the parts:

Q. 7(a) A boat, whose speed in still water is 5 km/hr, takes 1 hour more time to go **[6 marks]**
12 km upstream than to return downstream to the same spot. Find the speed of the stream.

— OR —

OR: Find the nature of the roots of the quadratic equation $2x^2 - 6x + 3 = 0$. If the roots are real, find them.

Q. 7(b) (i) In the figure, if BD ⊥ AC and CE ⊥ AB, prove that △AEC ~ △ADB. (ii) △ABC **[6 marks]**
is an isosceles triangle in which AC = BC. If $AB^2 = 2AC^2$, prove that △ABC is a right triangle.

> **Figure:** △ABC with BD ⊥ AC and CE ⊥ AB. (Diagram not reproduced.)

— OR —

OR: (i) In equilateral triangle ABC, whose side is a, prove that its altitude is a√3/2. (ii) The point D is on the side AC of △ABC such that ∠ACB = ∠ABD. Prove that △ABC ~ △ADB.

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Rebuild Notes

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1. Set identified as 822 AY per the SelfStudys listing for the 2022 Maths paper.
2. Question marks follow the old-format Maths pattern verified from the printed 2020 822 MY paper (Q1 6×1, Q2 4×1, Q3 4×2, Q4 4×2, Q5 4×4, Q6 4×4, Q7 2×6 = 70); the InfinityLearn transcription does not carry the marks.
3. Q1(d): the extract's stacked fractions were ambiguous; the options are entered as the canonical set for $\tan\theta = 2ab/(a^2 - b^2)$, verified against the source solution's $\cos\theta = (a^2 - b^2)/(a^2 + b^2)$.
4. Q2(b): the extract lost the numerator; restored as $(5\cos^2 60° + 4\sec^2 30° - \tan^2 45°)/(\sin^2 30° + \cos^2 30°)$ from the source solution's working.
5. Q3(d): the cylinder radius is $\sqrt{((r_1^2 + r_2^2)/3)}$ — the extract's "√ 1 3 2" is the flattened form of this.
6. Q4(c): the extract says "prove that a + b = 1"; corrected to 1/a + 1/b = 1 (the standard result, confirmed by the collinearity condition).
7. Q5(b): the similar triangle's sides are 3/4 times those of △ABC (the extract's stacked "3 over 4").
8. Q5(c)(ii): the extract lost the angles; restored as $\tan((B+C)/2) = \cot(A/2)$ from the source solution.
9. Q6(d): the extract's "meadin" is a typo for "median".
10. Q2(a), Q4(d) and Q7(b) refer to figures in the printed paper; figure notes are printed instead.
11. Exam date: the source does not state the 2022 Mathematics exam date, so no date is printed on the paper.

Source (third-party transcription): https://infinitylearn.com/surge/wp-content/uploads/securepdfs/2025/03/UP-Board-Class-10-Previous-Year-Question-Papers_Maths_Uttar-Pradesh_2022.pdf

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2019

Set 822 (set unverified) — 3¾ hours — Maximum Marks: 70

Exam: 16 February 2019 | Time allowed: 3¾ hours | Maximum marks: 70 | Total questions: 7

General Instructions

1. There are in all seven questions in this question paper.
2. All the questions are compulsory.
3. In the beginning of each, the number of parts to be attempted has been clearly mentioned.
4. Marks allotted to the questions are indicated against them.
5. Start with the first question and proceed to the last one.
6. Do not waste your time over a question you cannot solve.

Questions

Q. 1 Do all the parts:

Q. 1(a) Find the distance between the points (5, 0) and (−12, 0). **[1 mark]**

Q. 1(b) The common difference of an A.P. is −4 and its 10th term is −8. Determine the first term of the A.P. **[1 mark]**

Q. 1(c) Which of the following numbers cannot be the probability of an event? **[1 mark]**

(A) 1/3 (B) 2/3 (C) 3/2 (D) 15%

Q. 1(d) Evaluate $(2\tan 30°)/(1 - \tan^2 30°)$. **[1 mark]**

(A) cos 60° (B) tan 60° (C) sin 30° (D) sin 60°

Q. 1(e) In $\triangle ABC$, if $AB = 6\sqrt{3}$ cm, AC = 12 cm and BC = 6 cm, find the value of $\angle B$. **[1 mark]**

(A) 45° (B) 90° (C) 120° (D) 135°

Q. 1(f) If the roots of the quadratic equation $3x^2 - 6x + k = 0$ are equal, then the value of k is: **[1 mark]**

(A) 3 (B) 6 (C) 9 (D) 12

Q. 2 Do all the parts:

Q. 2(a) Determine the H.C.F of 130 and 280 using Euclid’s division algorithm. **[1 mark]**

Q. 2(b) Find the mode of the given distribution frequency: **[1 mark]**
Class interval: 10–20, 20–30, 30–40, 40–50, 50–60, 60–70
Frequency: 14, 13, 12, 20, 11, 15

Q. 2(c) If 8tan A = 15, then find the value of sin A. **[1 mark]**

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Q. 2(d) The sides of two similar triangles are in the ratio of 4:9. Find the ratio of their areas. **[1 mark]**

Q. 3 Do all the parts:

Q. 3(a) Show that $5\sqrt{2}$ is an irrational number. **[2 marks]**

Q. 3(b) If the points (1, 2), (4, y), (x, 6), and (3, 5) are taken in order as the vertices of a parallelogram, find the values of x and y. **[2 marks]**

Q. 3(c) A box contains 90 discs, each marked with a number from 1 to 90. If one disc is randomly drawn from the box, find the probability of the number on the disc being: (i) A two-digit number (ii) A number divisible by 5. **[2 marks]**

Q. 3(d) In $\triangle ABC$, prove that $\sec\left(\frac{B+C}{2}\right) = \operatorname{cosec}\left(\frac{A}{2}\right)$. **[2 marks]**

Q. 4 Do all the parts:

Q. 4(a) Without performing the long division process, state which of the following rational numbers will have terminating decimal expansions and which will have non-terminating recurring decimal expansions? (i) $13/3125$ (ii) $15/7$ (iii) $29/(2^3 \times 5^2)$ (iv) $77/210$ **[2 marks]**

Q. 4(b) Find the value of k, if the points (8, 1), (k, −4), and (2, −5) are collinear. **[2 marks]**

Q. 4(c) Find out whether the system of linear equations $2x - 3y = 8$ and $4x - 6y = 9$ is consistent or inconsistent. **[2 marks]**

Q. 4(d) Find the median of the following distribution: **[2 marks]**

Class Interval	0–10	10–20	20–30	30–40	40–50	50–60
Frequency	5	8	20	15	7	5

Q. 5 Do all the parts:

Q. 5(a) Solve the following pair of linear equations: $\frac{5}{x+y} + \frac{1}{x-y} = 2$; $\frac{15}{x+y} - \frac{5}{x-y} = -2$. **[4 marks]**

Q. 5(b) Find the sum of the odd numbers between 0 and 100. **[4 marks]**

Q. 5(c) A solid toy is in the shape of a hemisphere with a conical shape mounted on it. The height of the cone is 2 cm, and the diameter of its base is 4 cm. Find the volume of this toy. **[4 marks]**

Q. 5(d) The angle of depression of two ships observed from the top of a lighthouse, which is 75 m above sea level, are 30° and 45°. If the ships are on the same side of the lighthouse and one ship is directly behind the other, calculate the distance between the two ships. **[4 marks]**

Q. 6 Do all the parts:

Q. 6(a) The following distribution represents the daily pocket money of children in a neighbourhood. The mean pocket money is ₹18. Find the value of the frequency f: **[4 marks]**

Daily pocket money	11–13	13–15	15–17	17–19	19–21	21–23	23–25
Number of students	7	6	9	13	f	5	4

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Q. 6(b) (i) To create a cuboid with dimensions 5.5 cm × 10 cm × 3.5 cm, how many silver coins, each with a diameter of 1.75 cm and a thickness of 2 mm, need to be melted? (ii) In the figure, find the area of the shaded region if ABCD is a square with a side length of 14 cm, and APD and BPC are two semicircles. **[4 marks]**

> **Figure:** Square ABCD of side 14 cm with semicircles APD and BPC. (Diagram not reproduced.)

Q. 6(c) Prove that $(\operatorname{cosec}\theta - \sin\theta)(\sec\theta - \cos\theta) = 1/(\tan\theta + \cot\theta)$. **[4 marks]**

Q. 6(d) Prove that the lengths of tangents drawn from an external point to a circle are equal. **[4 marks]**

Q. 7 Do all the parts:

Q. 7(a) Find all the other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, given that two of its zeroes are $\sqrt{(5/3)}$ and $-\sqrt{(5/3)}$. **[6 marks]**

Q. 7(b) In an equilateral triangle ABC, a point D lies on the side BC such that $BD = (1/3)BC$. Prove that $9AD^2 = 7AB^2$. **[6 marks]**

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Rebuild Notes

This paper was rebuilt in KAMALDNP design from a third-party transcription of the original UP Board paper. Questions, order and marks are as printed in the source; answers and solutions are not included. Where the transcription was unclear or contradicted the Hindi original, the point is flagged below.

1. SET CODE NOT IDENTIFIED: the source scan carries no set code; no listing found that ties this paper to a set. The paper is printed with the set shown as unverified.
2. Question marks follow the old-format Maths pattern verified from the printed 2020 822 MY paper (Q1 6×1, Q2 4×1, Q3 4×2, Q4 4×2, Q5 4×4, Q6 4×4, Q7 2×6 = 70); the InfinityLearn transcription does not carry the marks. Q6(b) is entered as one 4-mark part with its two sub-parts inline.
3. Q1(a): the extract's stray word "are" ("points are (5,0)") is dropped.
4. Q1(c): the extract lost the numerators; the options are 1/3, 2/3, 3/2, 15%, confirmed by the source solution's enumeration.
5. Q1(d): the extract lost the numerator; restored as $(2\tan 30°)/(1 - \tan^2 30°)$ from the source solution's working (the value is tan 60°).
6. Q4(a): the extract lost the numerators; restored as 13/3125, 15/7, $29/(2^3 \times 5^2)$, 77/210 from the source solution.
7. Q6(c): the extract flattened the right-hand side to "tan θ + cot θ"; corrected to 1/(tan θ + cot θ), confirmed by the source solution.
8. Q7(a): the polynomial is $3x^4 + 6x^3 - 2x^2 - 10x - 5$ (the extract flattened the powers).
9. Q7(b): the extract says "BD = 3 BC"; corrected to BD = (1/3)BC (the standard question, confirmed by $9AD^2 = 7AB^2$).
10. Q6(b)(ii) refers to a figure in the printed paper; a figure note is printed instead.
11. Exam date (16 February 2019) is from the JagranJosh article on the 2019 Maths paper; the clock time is not stated, so no time is printed on the paper.

Source (third-party transcription): https://infinitylearn.com/surge/wp-content/uploads/securepdfs/2025/03/UP-Board-Class-10-Previous-Year-Question-Papers_Maths_Uttar-Pradesh_2019_R1.pdf

Cross-checked against: https://www.jagranjosh.com/articles/up-board-exam-2019-check-class-10th-mathematics-question-paper-1550379487-1

English text only. The original paper is bilingual (Hindi + English); a Hindi side is a follow-up round, not this one. No official UP Board previous-year archive exists, so every paper in this volume is third-party-source.

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2018

Set 822 (set unverified) — 3¾ hours — Maximum Marks: 70

Time allowed: 3¾ hours | Maximum marks: 70 | Total questions: 7

General Instructions

1. There are in all seven questions in this question paper.
2. All the questions are compulsory.
3. In the beginning of each, the number of parts to be attempted has been clearly mentioned.
4. Marks allotted to the questions are indicated against them.
5. Start with the first question and proceed to the last one.
6. Do not waste your time over a question you cannot solve.

Questions

Q. 1 Do all the parts:

Q. 1(a) What will be the greatest common divisor (GCD) of the expressions $(x - 2)(x + 4)^2$ and $(x - 2)^2$? **[1 mark]**

(A) $(x + 4)^2$ (B) $(x - 2)^2$
(C) $(x - 2)(x + 4)^2$ (D) $(x - 2)$

Q. 1(b) Find the mode of 12, 20, 21, 29, 12, 29, 12, 29, 24 and 29. **[1 mark]**

Q. 1(c) Find the value of $\cos 15° + \cos 105°$. **[1 mark]**

(A) 1/2 (B) $1/\sqrt{2}$ (C) $\sqrt{3}/2$ (D) $3/\sqrt{2}$

Q. 1(d) Two circles touch each other internally. The distance between their centres is 3 cm. If the radius of one circle is 2 cm, what will be the radius of the other circle? **[1 mark]**

(A) 4 cm (B) 5 cm (C) 6 cm (D) 7 cm

Q. 1(e) What will be the slope of the line passing through the points (a, a^2) and (b, b^2)? **[1 mark]**

(A) 1/b (B) a/b (C) (a + b) (D) −(a − b)

Q. 1(f) In the given figure, O is the centre of the circle. PA and PB are tangents to the circle, touching it at points A and B, respectively. If ∠APB = 50°, find the measure of ∠AOB. **[1 mark]**

> **Figure:** O is the centre of the circle, PA and PB are tangents touching it at A and B. (Diagram not reproduced.)

(A) 100° (B) 105° (C) 120° (D) 130°

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Q. 2 Do all the parts:

Q. 2(a) The slope of a line is $-b/a$, and it intersects the positive direction of the y-axis at b. Find the equation of the line. **[1 mark]**

Q. 2(b) Find the value of $\tan 13\pi/6$. **[1 mark]**

Q. 2(c) The median of the numbers arranged in descending order: 48, 44, 41, 36, (2x+8), (2x−6), 14, 11, 8, 6 is 25. Find the value of x. **[1 mark]**

Q. 2(d) If $f(x) = (x^2 - 4x + 13)/(x + 1)$, find the value of f(8). **[1 mark]**

Q. 3 Do all the parts:

Q. 3(a) Prove that: $[\cos(60° - A) + \sin(30° - A)] / [\cos(30° - A) - \sin(60° - A)] = \cot A$. **[2 marks]**

Q. 3(b) In the figure, the centre of a semicircle is O and the diameter is BC. If $\angle ABO = 50°$, find the measure of $\angle OAC$. **[2 marks]**

> **Figure:** Semicircle with centre O and diameter BC. (Diagram not reproduced.)

Q. 3(c) Find the positive slope of the line $x + y = 9$ with respect to the x-axis and the segment intercepted by the line on the y-axis. **[2 marks]**

Q. 3(d) Find the height of a cylinder, whose curved surface area is 900π cm² and its radius 10 cm. **[2 marks]**

Q. 4 Do all the parts:

Q. 4(a) Sanjay buys a bicycle for ₹3,528, including sales tax. If the marked price of the bicycle is ₹3,360, find the rate of sales tax. **[2 marks]**

Q. 4(b) Prove that: $\cot A - \tan A = 2\cot 2A$. **[2 marks]**

Q. 4(c) Draw a circle with a radius of 3.5 cm. Construct tangents to the circle from a point located 7.5 cm away from the centre of the circle. **[2 marks]**

Q. 4(d) The height and radius of a right circular cone are 15 cm and 8 cm, respectively. Find the curved surface area of the cone. (Take $\pi = 3.14$). **[2 marks]**

Q. 5 Do all the parts:

Q. 5(a) Find the L.C.M. (Lowest Common Multiple) of the expressions $x^2 + x - 12$, $x^2 - 9$, and $x^2 + 8x + 16$. **[4 marks]**

Q. 5(b) Prove that: $\tan A/(1 - \cot A) + \cot A/(1 - \tan A) = 1 + \sec A \operatorname{cosec} A$. **[4 marks]**

Q. 5(c) Find the equation of a line parallel to $3x - 5y = 4$ that passes through the midpoint P of the line segment joining the points (6, −4) and (4, 4). **[4 marks]**

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Q. 5(d) In the financial year 2016-17, an individual's annual income (excluding house rent allowance) is ₹6,20,000. He deposits ₹8,000 per month into his General Provident Fund (GPF) account and ₹80,000 into his Public Provident Fund (PPF) account. Calculate the income tax payable by the individual, given that the maximum deduction allowed on savings is ₹1,50,000. **[4 marks]**

The applicable income tax rates are as follows:
Income: Up to Rs. 2,50,000 — Income tax: zero
Income: Rs. 2,50,001 to 5,00,000 — Income tax: 10% on income above Rs. 2,50,000
Education cess: 3%.

Q. 6 Do all the parts:

Q. 6(a) Find the median from the following frequency distribution: **[4 marks]**
Class interval: 0–10, 10–20, 20–30, 30–40, 40–50
Frequency: 12, 18, 24, 15, 11

Q. 6(b) A toy is in the shape of a cone mounted on a hemisphere with a radius of 3.5 cm. The total height of the toy is 15.5 cm. Find the total surface area of the toy. **[6 marks]**

Q. 6(c) From a point on the ground, the angles of elevation to the base and the top of a communication tower placed on the roof of a 20-meter-high building are 45° and 60°, respectively. Find the height of the tower. (Take $\sqrt{3} = 1.732$). **[6 marks]**

Q. 7 Do all the parts:

Q. 7(a) Prove that if the non-parallel sides of a trapezium are equal, then it will be a cyclic quadrilateral. **[4 marks]**

Q. 7(b) The diagonal of the rectangular field is 30 m more than the shortest side of the field. If the larger side is 15 m more than the shortest side, then find the sides of the rectangular field. **[4 marks]**

Q. 7(c) (i) Find the roots of quadratic equation $3x^2 - 6x + 2 = 0$. (ii) If the roots of the quadratic equation $ax^2 + bx + c = 0$ are α and β, find the value of the expression $\alpha^3 + \beta^3$. **[4 marks]**

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Rebuild Notes

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1. SET CODE NOT IDENTIFIED: the source scan carries no set code; no listing found that ties this paper to a set. The paper is printed with the set shown as unverified.
2. Every question header in the source extract reads “Qn. All questions are compulsory.” (boilerplate, not part of the question); the printed “Do all the parts:” header of this paper format is used instead.
3. Question totals follow the old-format Maths pattern verified from the printed 2020 822 MY paper (Q1 6, Q2 4, Q3 8, Q4 8, Q5 16, Q6 16, Q7 12 = 70); the InfinityLearn transcription does not carry the marks. Q6 has only 3 parts and Q7 has 3 parts, so their internal splits are pattern-assumed: Q6 (a) 4, (b) 6, (c) 6; Q7 (a) 4, (b) 4, (c) 4.
4. Q1(c): the options are 1/2, 1/√2, √3/2, 3/√2 (the extract’s stacked fractions); the value is cos 15° + cos 105° = 1/√2.
5. Q1(e): the options are 1/b, a/b, (a + b), −(a − b); the slope is a + b.
6. Q2(b): the extract’s “tan 6” is the flattened fraction tan 13π/6, confirmed by the source solution.
7. Q2(d): the extract lost the function definition; restored as f(x) = (x² − 4x + 13)/(x + 1) from the source solution (f(8) = 5).
8. Q5(d): the income-tax slab table is as printed in the source (only the two slabs up to Rs. 5,00,000 are given, plus 3% education cess).
9. Q1(f) and Q3(b) refer to figures in the printed paper; figure notes are printed instead.
10. Exam date: the source does not state the 2018 Mathematics exam date, so no date is printed on the paper.

Source (third-party transcription): https://infinitylearn.com/surge/wp-content/uploads/securepdfs/2025/03/UP-Board-Class-10-Previous-Year-Question-Papers_Maths_Uttar-Pradesh_2018_R1.pdf

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UP BOARD • CLASS 10 (HIGH SCHOOL)

Class 10 Mathematics 2017

Set 822 (set unverified) — 3¾ hours — Maximum Marks: 70

Time allowed: 3¾ hours | Maximum marks: 70 | Total questions: 7

General Instructions

1. There are in all seven questions in this question paper.
2. All the questions are compulsory.
3. In the beginning of each, the number of parts to be attempted has been clearly mentioned.
4. Marks allotted to the questions are indicated against them.
5. Start with the first question and proceed to the last one.
6. Do not waste your time over a question you cannot solve.

Questions

Q. 1 Do all the parts:

Q. 1(i) Find the additive inverse of $(x^2 + 2)/(x - 1)$. **[1 mark]**

Q. 1(ii) Find the median of 2, 12, 0, 9, 5, 15, 7, 4. **[1 mark]**

Q. 1(iii) Evaluate cos 15°. **[1 mark]**

(A) $(\sqrt{3} + 1)/(2\sqrt{2})$ (B) $(\sqrt{3} - 1)/(2\sqrt{2})$
(C) $1/(2\sqrt{2})$ (D) $(\sqrt{3} \pm 1)/(2\sqrt{2})$

Q. 1(iv) Find the gradient of the line perpendicular to $x - y + 3 = 0$. **[1 mark]**

(A) −1 (B) −1/2 (C) 2 (D) 1

Q. 1(v) ABCD is a cyclic quadrilateral. If ∠BAC = 50° and ∠DBC = 60° then find ∠BCD. **[1 mark]**

Q. 1(vi) In the given figure, OA = 5 cm, OC ⊥ AB, find AB. **[1 mark]**

> **Figure:** OA = 5 cm, OC ⊥ AB. (Diagram not reproduced.)

Q. 2 Do all the parts:

Q. 2(i) If the arithmetic mean of 4, 5, x, and 9 is 7, then find the value of x. **[1 mark]**

Q. 2(ii) Given the angle ∠ABC = 70°, then find ∠BAC. **[1 mark]**

> **Figure:** a triangle with ∠ABC = 70°. (Diagram not reproduced.)

Q. 2(iii) If cos 30° = √3/2, then find the value of sin 15°. **[2 marks]**

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Q. 3 Do all the parts:

Q. 3(i) If $x^2 + px + q = 0$ has roots α, β, then find the value of $\alpha^2\beta + \alpha\beta^2$. **[2 marks]**

Q. 3(ii) Mohan purchased a bicycle including sales tax for Rs. 1058.40, if the actual price is Rs. 980, then find the rate of sales tax. **[2 marks]**

Q. 3(iii) Draw a circle with a radius of 2.5 cm such that the angle between two tangents to the circle is 70°. **[2 marks]**

Q. 3(iv) Find the curved surface area of a cylinder of height 5 cm and area of base 36π cm^2. **[2 marks]**

Q. 4 Do all the parts:

Q. 4(i) Two right circular cones have the same height. If the radius of base of a right circular cone is half of the radius of another cone, then find the ratio of their volumes. **[2 marks]**

Q. 4(ii) Find the equation of the line perpendicular to $x/a + y/b = 1$ and passing through the origin. **[2 marks]**

Q. 4(iii) Prove that $\cot A + \tan A = 2 \operatorname{cosec} 2A$. **[2 marks]**

Q. 4(iv) PT is a tangent, and PBA is a secant line. If PB = 4 cm, PA = 9 cm, then find PT. **[2 marks]**

Q. 5 Do all the parts:

Q. 5(i) A man on the deck of a ship at a height of 'a' metres above the water level observes that the angle of elevation to the top of a cliff is 60°, and the angle of depression to the base of the cliff is 30°. Calculate the distance of the cliff from the ship and the height of the cliff. **[4 marks]**

Q. 5(ii) Find the ratio of the height of cone and the hemisphere having the same base and having same volume. **[4 marks]**

Q. 5(iii) Find the area of the triangle if one vertex is at (2, 1), and the base of the equilateral triangle lies along the line $x + y = 2$. **[4 marks]**

Q. 5(iv) If two circles with centers O and O′ touch each other externally at point P, and a common tangent AB is drawn at P, prove that $\angle APB = 90°$. **[4 marks]**

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Q. 6 Do all the parts:

Q. 6(a) The monthly income of a person is Rs. 50,000. He deposited Rs. 35,000 in the Prime Minister's fund, on which 100% deduction is allowed, and he donated Rs. 15,000 to a hospital, on which 50% deduction is allowed. He also deposited Rs. 10,000 half-yearly in life insurance and bought National Saving Certificates worth Rs. 25,000. If he paid income tax for the year, find the amount of income tax paid by him in the last month. (Deduction up to Rs. 1,50,000 on total savings at 100%.) **[4 marks]**

The applicable income tax rates are as follows:
Income: Rs. 2,00,000 to 5,00,000 — Income tax: 10% on income above Rs. 2,00,000
Income up to Rs. 2,00,000 — Income tax: zero
Education cess: 3%.

Q. 6(ii) Find the median daily wages from the following frequency distribution: **[4 marks]**
Class-interval: 10–15, 15–20, 20–25, 25–30, 30–35, 35–40
Frequency: 5, 6, 8, 12, 6, 4

Q. 6(iii) Solve the equation $x/(x+1) + (x+1)/x = 34/15$. **[4 marks]**

Q. 6(iv) Draw a 5 cm equilateral triangle and construct its circumcircle. Give the reason. **[4 marks]**

Q. 7 Do all the parts:

Q. 7(i) The HCF and LCM of two polynomials are $(x - 5)$ and $(x - 5)(x^2 - 7x + 12)$. If one polynomial is $(x^2 - 8x + 15)$, then find the second polynomial. **[4 marks]**

Q. 7(ii) Prove that $(\cos A + \cos B)^2 + (\sin A + \sin B)^2 = 4\cos^2((A - B)/2)$. **[4 marks]**

Q. 7(iii) Prove that $\sin \alpha \times \sin (60 - \alpha) \times \sin (60 + \alpha) = (1/4) \sin 3\alpha$. **[4 marks]**

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Rebuild Notes

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2. Question totals follow the old-format Maths pattern verified from the printed 2020 822 MY paper (Q1 6, Q2 4, Q3 8, Q4 8, Q5 16, Q6 16, Q7 12 = 70); the InfinityLearn transcription does not carry the marks. Q2 has only 3 parts, so its internal split is pattern-assumed: (i) 1, (ii) 1, (iii) 2.
3. Q1(i): the extract reads “Evaluate adding of inverse $(x^2+2)/(x-1)$”; restored as “Find the additive inverse of $(x^2 + 2)/(x - 1)$” from the source solution’s working.
4. Q1(iii): the options are $(\sqrt{3}+1)/(2\sqrt{2})$, $(\sqrt{3}-1)/(2\sqrt{2})$, $1/(2\sqrt{2})$, $(\sqrt{3}\pm1)/(2\sqrt{2})$, read from the stacked fractions in the source.
5. Q2(ii): the question as transcribed is incomplete (it gives only $\angle ABC = 70°$ and asks for $\angle BAC$, with a figure that did not survive in the text); it is reproduced as transcribed with a figure note.
6. Q2(iii): the extract leaves the value of cos 30° blank; filled as $\sqrt{3}/2$ (the standard value, confirmed by the source solution’s working).
7. Q4(ii): the extract’s “root point” is read as the origin; the question is “Find the equation of the line perpendicular to x/a + y/b = 1 and passing through the origin.”
8. Q4(iii): the extract says “cos A + tan A = 2cosec 2A”; corrected to cot A + tan A = 2 cosec 2A, confirmed by the source solution (L.H.S. is cot A + tan A).
9. Q6(a): the income-tax question is heavily garbled in the transcription (figures and wording do not cohere); it is reproduced here in cleaned form from the raw text, with the two-slab tax table as given. Treat this question as transcription-quality-limited.
10. Q6(iii): the extract’s “x+1 + x = 15” is the flattened form of x/(x+1) + (x+1)/x = 34/15, confirmed by the source solution’s first step.
11. Q7(iii): the extract says “= 4 sin 3α”; corrected to (1/4) sin 3α (the standard identity).
12. Q1(vi) and Q2(ii) refer to figures in the printed paper; figure notes are printed instead.
13. Exam date: the source does not state the 2017 Mathematics exam date, so no date is printed on the paper.

Source (third-party transcription): https://infinitylearn.com/surge/wp-content/uploads/securepdfs/2025/03/UP-Board-Class-10-Previous-Year-Question-Papers_Maths_Uttar-Pradesh_2017_R1.pdf

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