BOARD EXAM REVISION TEST NO. 01

CLASS: X : REAL NUMBERS

M.M. 20 Marks **T.T. 1 hr**

Note: Q. No. 1 to 2 of 1 mark, Q. No. 3 to 4 of 2 marks, Q. No. 5 to 6 of 3 marks, Q. No. 7 to 8 of 4 marks

1. State "Euclid's Division Lemma"

2. Write the condition to be satisfied by q so that a rational number p/q has a terminating expression.

3. Show that any positive odd integer is of the form $4q + 1$ or $4q + 3$, where q is some integer.

4. Find the HCF of 96 and 404 by the prime factorisation method. Hence, find their LCM.

5. Show that any positive even integer is of the form $6q$ or $6q + 2$, or $6q + 4$, where q is some integer.

6. Prove $\sqrt{5}$ is an irrational number.

7. Use Euclid's division lemma to show that the square of any positive integer is of the form $3m$ or $3m + 1$ for some integer m.

8. Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m$, $9m + 1$ or $9m + 8$ for some integer m.

BOARD EXAM REVISION TEST NO. 01

CLASS: X : REAL NUMBERS

M.M. 20 Marks **T.T. 1 hr**

Note: Q. No. 1 to 2 of 1 mark, Q. No. 3 to 4 of 2 marks, Q. No. 5 to 6 of 3 marks, Q. No. 7 to 8 of 4 marks

1. State "Euclid's Division Lemma"

2. Write the condition to be satisfied by q so that a rational number p/q has a terminating expression.

3. Show that any positive odd integer is of the form $4q + 1$ or $4q + 3$, where q is some integer.

4. Find the HCF of 96 and 404 by the prime factorisation method. Hence, find their LCM.

5. Show that any positive even integer is of the form $6q$ or $6q + 2$, or $6q + 4$, where q is some integer.

6. Prove $\sqrt{5}$ is an irrational number.

7. Use Euclid's division lemma to show that the square of any positive integer is of the form $3m$ or $3m + 1$ for some integer m.

8. Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m$, $9m + 1$ or $9m + 8$ for some integer m.

BOARD EXAM REVISION TEST NO. 02
CLASS: X : MATHEMATICS

M.M. 30 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

1. If HCF(6, a) = 2 and LCM(6, a) = 60 then find the value of a.

2. Write the condition to be satisfied by q so that a rational number $\frac{p}{q}$ has non-terminating expression.

3. Show that 12^n cannot end with the digit 0 or 5 for any natural number *n*.

SECTION – B(3 marks each)

4. Using Euclid's division algorithm, find the HCF of 2160 and 3520.

5. Find the HCF and LCM of 144, 180 and 192 by using prime factorization method.

6. Prove that $2+3\sqrt{5}$ is an irrational number.

7. In a morning walk, three persons step off together. Their steps measure 80 cm, 85 cm and 90 cm respectively. What is the minimum distance each should walk so that all can cover the same distance in complete steps?

SECTION – C(4 marks each)

8. Show that any positive even integer is of the form 6q or 6q + 2 or 6q + 4 where $q \in Z$.

9. Prove that $\sqrt{3}$ is an irrational number.

10. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.

BOARD EXAM REVISION TEST NO. 02
CLASS: X : MATHEMATICS

M.M. 30 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

1. If HCF(6, a) = 2 and LCM(6, a) = 60 then find the value of a.

2. Write the condition to be satisfied by q so that a rational number $\frac{p}{q}$ has non-terminating expression.

3. Show that 12^n cannot end with the digit 0 or 5 for any natural number *n*.

SECTION – B(3 marks each)

4. Using Euclid's division algorithm, find the HCF of 2160 and 3520.

5. Find the HCF and LCM of 144, 180 and 192 by using prime factorization method.

6. Prove that $2+3\sqrt{5}$ is an irrational number.

7. In a morning walk, three persons step off together. Their steps measure 80 cm, 85 cm and 90 cm respectively. What is the minimum distance each should walk so that all can cover the same distance in complete steps?

SECTION – C(4 marks each)

8. Show that any positive even integer is of the form 6q or 6q + 2 or 6q + 4 where $q \in Z$.

9. Prove that $\sqrt{3}$ is an irrational number.

10. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.

BOARD EXAM REVISION TEST NO. 03

POLYNOMIALS

CLASS: X : MATHEMATICS

M.M. 20 Marks **T.T. 1 hr**

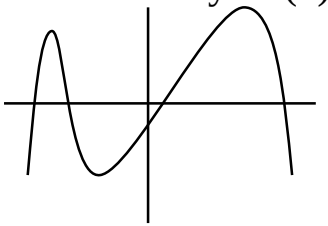
SECTION – A(2 marks each)

1. Find a quadratic polynomial, the sum and product of whose zeroes are – 3 and 2, respectively.

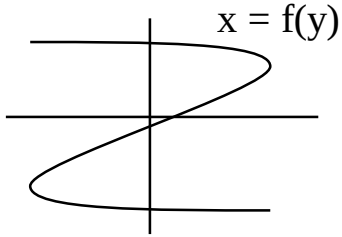
2. Check whether g(x) = $x^2 + 3x + 1$ is a factor of the polynomial p(x)=$3x^4 + 5x^3 – 7x^2 + 2x + 2$ by dividing p(x) by g(x).

3. Find the number of zeroes of the given curves:

(i)



(ii)



SECTION – B(3 marks each)

4. Find the quotient and remainder when $4x^3 + 2x^2 + 5x – 6$ is divided by $2x^2 + 3x + 1$.

5. On dividing $x^3 – 3x^2 + x + 2$ by a polynomial $g(x)$, the quotient and remainder were $x – 2$ and $–2x + 4$, respectively. Find $g(x)$.

SECTION – C(4 marks each)

6. Find the zeroes of the quadratic polynomial $3x^2 + 5x – 2$, and verify the relationship between the zeroes and the coefficients.

7. Obtain all the zeroes of $3x^4 + 6x^3 – 2x^2 – 10x – 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$.

BOARD EXAM REVISION TEST NO. 03

POLYNOMIALS

CLASS: X : MATHEMATICS

M.M. 20 Marks **T.T. 1 hr**

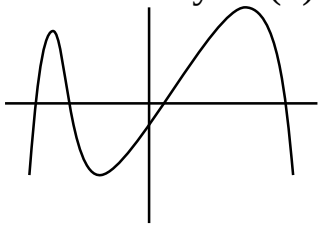
SECTION – A(2 marks each)

1. Find a quadratic polynomial, the sum and product of whose zeroes are – 3 and 2, respectively.

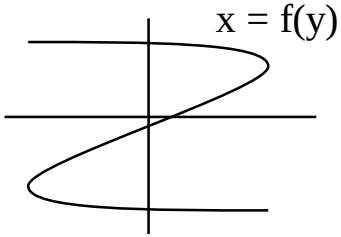
2. Check whether g(x) = $x^2 + 3x + 1$ is a factor of the polynomial p(x)=$3x^4 + 5x^3 – 7x^2 + 2x + 2$ by dividing p(x) by g(x).

3. Find the number of zeroes of the given curves:

(i)



(ii)



SECTION – B(3 marks each)

4. Find the quotient and remainder when $4x^3 + 2x^2 + 5x – 6$ is divided by $2x^2 + 3x + 1$.

5. On dividing $x^3 – 3x^2 + x + 2$ by a polynomial $g(x)$, the quotient and remainder were $x – 2$ and $–2x + 4$, respectively. Find $g(x)$.

SECTION – C(4 marks each)

6. Find the zeroes of the quadratic polynomial $3x^2 + 5x – 2$, and verify the relationship between the zeroes and the coefficients.

7. Obtain all the zeroes of $3x^4 + 6x^3 – 2x^2 – 10x – 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$.

BOARD EXAM REVISION TEST NO. 04
CIRCLES
CLASS: X : MATHEMATICS

M.M. 20 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

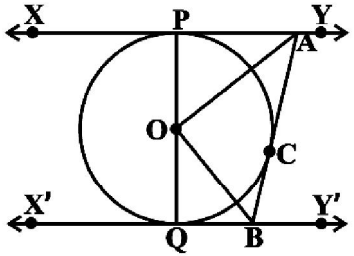
1. The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle.

2. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80°, then find $\angle$POA.

3. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

SECTION – B(3 marks each)

4. In the below figure, XY and X′Y′ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X′Y′ at B. Prove that $\angle$AOB = 90°.



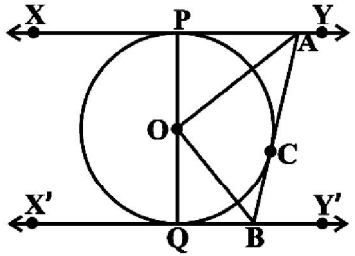
5. Prove that the parallelogram circumscribing a circle is a rhombus.

SECTION – C(4 marks each)

6. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively. Find the sides AB and AC.

7. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

BOARD EXAM REVISION TEST NO. 04
CIRCLES
CLASS: X : MATHEMATICS
M.M. 20 Marks T.T. 1 hr
SECTION – A(2 marks each)
1. The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle.
2. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80°, then find $\angle$POA.
3. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.
SECTION – B(3 marks each)
4. In the below figure, XY and X′Y′ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X′Y′ at B. Prove that $\angle$AOB = 90°.



5. Prove that the parallelogram circumscribing a circle is a rhombus.
SECTION – C(4 marks each)
6. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively. Find the sides AB and AC.
7. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

BOARD EXAM REVISION TEST NO. 05

CLASS: X : MATHEMATICS

M.M. 20 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

1. The length of a tangent from a point A at distance 13 cm from the centre of the circle is 12 cm. Find the radius of the circle.

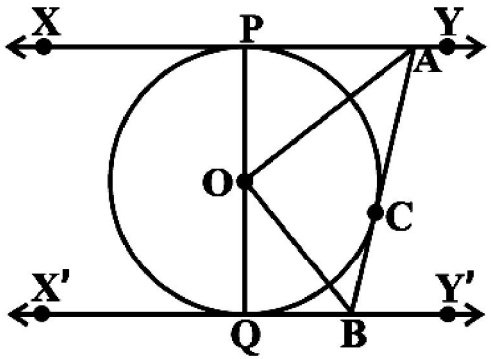
2. If TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 110°$, then find the value of $\angle PTQ$

3. Prove that in two concentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

SECTION – B(3 marks each)

4. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC

5. In the below figure, XY and X′Y′ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X′Y′ at B. Prove that $\angle AOB = 90°$.



SECTION – C(4 marks each)

6. Prove that "The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides."

7. Prove that "The lengths of the tangents drawn from an external point to a circle are equal".

BOARD EXAM REVISION TEST NO. 05

CLASS: X : MATHEMATICS

M.M. 20 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

1. The length of a tangent from a point A at distance 13 cm from the centre of the circle is 12 cm. Find the radius of the circle.

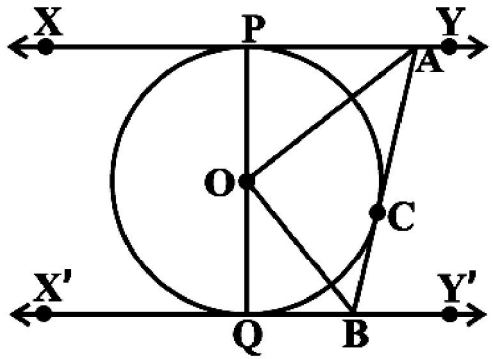
2. If TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 110°$, then find the value of $\angle PTQ$

3. Prove that in two concentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

SECTION – B(3 marks each)

4. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC

5. In the below figure, XY and X′Y′ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X′Y′ at B. Prove that $\angle AOB = 90°$.



SECTION – C(4 marks each)

6. Prove that "The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides."

7. Prove that "The lengths of the tangents drawn from an external point to a circle are equal".

BOARD EXAM REVISION TEST NO. 06

CLASS: X : MATHEMATICS

M.M. 30 Marks **T.T. 1 hr**

SECTION – A(1 mark each)

1. Find the HCF of 96 and 404 by the prime factorisation method.

SECTION – B(2 marks each)

2. Use Euclid's division algorithm to find the HCF of 867 and 255.

3. Find a quadratic polynomial whose zeroes are – 3 and 2.

4. Prove that $\sqrt{2}$ is an irrational number.

SECTION – C(3 marks each)

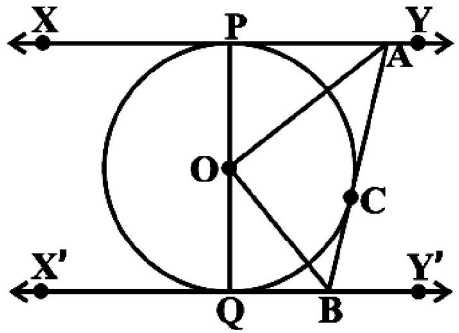
5. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC

6. Find the zeroes of the quadratic polynomial $x^2 + 7x + 10$, and verify the relationship between the zeroes and the coefficients.

7. Divide $3x^2 – x^3 – 3x + 5$ by $x – 1 – x^2$, and verify the division algorithm.

8. Use Euclid's division lemma to show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m.

9. In fig., XY and X′Y′ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X′Y′ at B. Prove that $\angle AOB = 90°$.



SECTION – D(4 marks each)

10. Prove that "The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides."

11. Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle and measure their lengths.

BOARD EXAM REVISION TEST NO. 07

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1 ½ hr**

SECTION – A(1 mark each)

1. Check whether there is any value of n for which 4^n ends with the digit zero.

SECTION – B(2 marks each)

2. Use Euclid's division algorithm to find the HCF of 420 and 130.

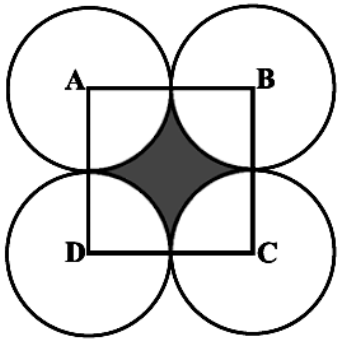
3. Find a quadratic polynomial whose zeroes are – 5 and 3.

4. Prove that $3+5\sqrt{2}$ is an irrational number.

SECTION – C(3 marks each)

5. Prove that the parallelogram circumscribing a circle is a rhombus.

6. In the below figure, ABCD is a square of side 14 cm. With centres A, B, C and D, four circles are drawn such that each circle touch externally two of the remaining three circles. Find the area of the shaded region.



7. Find the zeroes of the quadratic polynomial $x^2 – 2x – 8$, and verify the relationship between the zeroes and the coefficients.

8. Divide $3x^3 + x^2 + 2x + 5$ by $1 + 2x + x^2$, and verify the division algorithm.

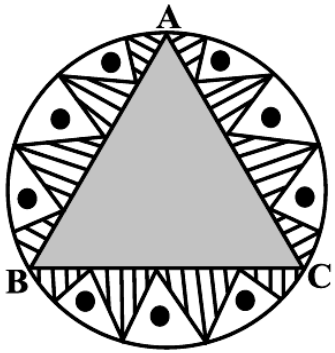
9. Show that any positive odd integer is of the form 6q + 1, or 6q + 3, or 6q + 5, where q is some integer.

10. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

11. The perpendicular from A on side BC of a ΔABC intersects BC at D such that DB = 3 CD. Prove that $2AB^2 = 2AC^2 + BC^2$.

SECTION – D(4 marks each)

12. In a circular table cover of radius 32 cm, a design is formed leaving an equilateral triangle ABC in the middle as shown in below figure. Find the area of the design (shaded region).



13. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose sides are 7/5 of the corresponding sides of the first triangle.

14. Prove that "If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio".

BOARD EXAM REVISION TEST NO. 08

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1¼ hr**

SECTION – A(1 mark each)

1. State Euclid's division lemma.

SECTION – B(2 marks each)

2. Use Euclid's division algorithm to find the HCF of 420 and 455.

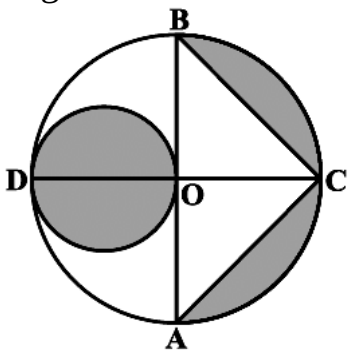
3. Find a quadratic polynomial whose zeroes are – 2 and – 3.

4. Prove that $3-2\sqrt{5}$ is an irrational number.

SECTION – C(3 marks each)

5. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC

6. In the below figure, AB and CD are two diameters of a circle (with centre O) perpendicular to each other and OD is the diameter of the smaller circle. If OA = 7 cm, find the area of the shaded region.



7. Find the zeroes of the quadratic polynomial $6x^2 - 3 - 7x$, and verify the relationship between the zeroes and the coefficients.

8. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial g(x), the quotient and remainder were x – 2 and –2x + 4, respectively. Find g(x).

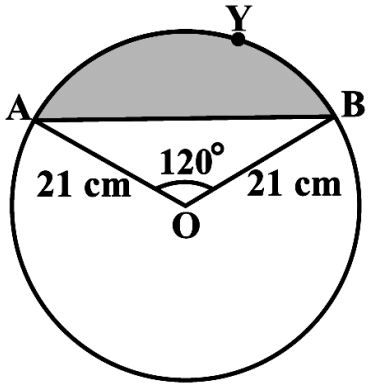
9. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.

10. Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the center of the circle.

11. Prove that the sum of the squares of the sides of a rhombus is equal to the sum of the squares of its diagonals.

SECTION – D(4 marks each)

12. Find the area of the segment AYB shown in the below figure, if radius of the circle is 21 cm and $\angle AOB = 120°$.



13. Draw a triangle ABC with side BC = 6 cm, AB = 5 cm and $\angle ABC = 60°$. Then construct a triangle whose sides are 3/4 of the corresponding sides of the triangle ABC.

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides".

BOARD EXAM REVISION TEST NO. 09

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Use Euclid's division algorithm to find the HCF of 867 and 255

2. Explain why $7 \times 11 \times 13 + 13$ is composite number.

SECTION – B(2 marks each)

3. Two dice are thrown together. Find the probability that the product of the numbers on the top of the dice is (i) 6 (ii) 12

4. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is double that of a red ball, determine the number of blue balls in the bag.

5. Prove that $3+2\sqrt{5}$ is an irrational

SECTION – C(3 marks each)

6. The sum of the 4th and 8th terms of an AP is 24 and the sum of the 6th and 10th terms is 44. Find the first three terms of the AP.

7. Find the zeroes of the polynomial $3x^2 + 5x - 2$ and verify the relationship between the zeroes and the coefficients.

8. Find the median wages for the following frequency distribution:

Wages per day	61-70	71-80	81-90	91-100	101-110	111-120
No. of workers	5	15	20	30	10	8

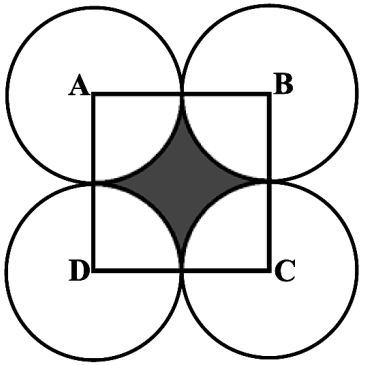
9. Prove that the parallelogram circumscribing a circle is a rhombus.

10. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

11. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.

12. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60°.

13. In the below figure, ABCD is a square of side 14 cm. With centres A, B, C and D, four circles are drawn such that each circle touch externally two of the remaining three circles. Find the area of the shaded region.



SECTION – D(4 marks each)

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

15. Draw more than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Students	5	8	6	10	6	6

Also find the median from the graph

BOARD EXAM REVISION TEST NO. 10
CLASS: X

M.M. 40 Marks **T.T. 1 ½ hr**

SECTION – A(1 marks each)

1. If the perimeter and the area of a circle are numerically equal, then find the radius of the circle.

2. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$; a, b being prime numbers, then find LCM (p, q)

SECTION – B(2 marks each)

3. If the HCF of 65 and 117 is expressible in the form 65m – 117, then find the value of m.

4. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80°, then find $\angle$POA.

5. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial g(x), the quotient and remainder were $x - 2$ and $-2x + 4$, respectively. Find g(x).

SECTION – C(3 marks each)

6. Prove that $2-3\sqrt{5}$ is an irrational number.

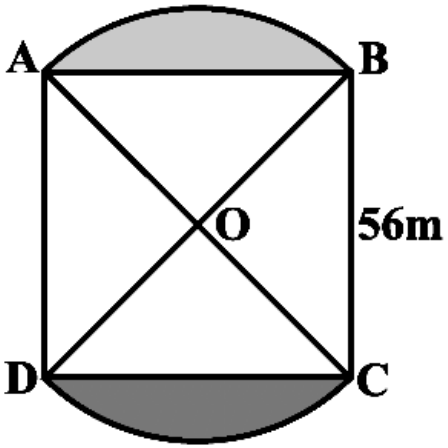
7. Prove that the parallelogram circumscribing a circle is a rhombus.

8. Find the area of the sector of a circle with radius 4 cm and of angle 30°. Also, find the area of the corresponding major sector (Use $\pi = 3.14$).

9. A circle touches all the four sides a quadrilateral ABCD. Prove that the angles subtended at the centre of the circle by the opposite sides are supplementary.

SECTION – D(4 marks each)

10. In the below figure, two circular flower beds have been shown on two sides of a square lawn ABCD of side 56 m. If the centre of each circular flower bed is the point of intersection O of the diagonals of the square lawn, find the sum of the areas of the lawn and the flower beds.



11. Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are 2/3 of the corresponding sides of the first triangle.

12. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides".

13. Use Euclid's division lemma to show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m.

14. Find all the zeroes of $2x^4 - 3x^3 - 3x^2 + 6x - 2$, if you know that two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$

BOARD EXAM REVISION TEST NO. 11

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1 ½ hr**

SECTION – A(1 mark each)

1. Given that HCF (306, 657) = 9, find LCM (306, 657).

SECTION – B(2 marks each)

2. Use Euclid's division algorithm to find the HCF of 135 and 225.

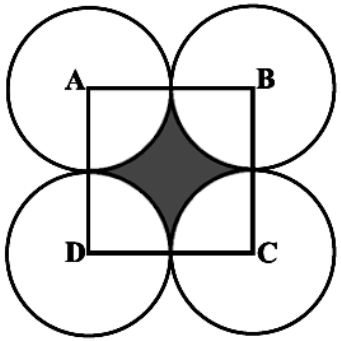
3. Find a quadratic polynomial whose zeroes are – 4 and 3.

4. Prove that $5\sqrt{2}$ is an irrational number.

SECTION – C(3 marks each)

5. Prove that the parallelogram circumscribing a circle is a rhombus.

6. In the below figure, ABCD is a square of side 14 cm. With centres A, B, C and D, four circles are drawn such that each circle touch externally two of the remaining three circles. Find the area of the shaded region.



7. Find the zeroes of the quadratic polynomial $x^2 - 2x - 8$, and verify the relationship between the zeroes and the coefficients.

8. Divide $3x^3 + x^2 + 2x + 5$ by $1 + 2x + x^2$, and verify the division algorithm.

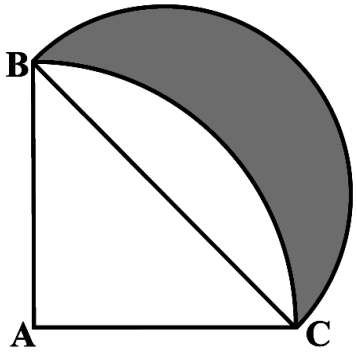
9. Show that any positive even integer is of the form 6q, or 6q + 2, or 6q + 4, where q is some integer.

10. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

11. D and E are points on the sides CA and CB respectively of a triangle ABC right angled at C. Prove that $AE^2 + BD^2 = AB^2 + DE^2$.

SECTION – D(4 marks each)

12. In the below figure, ABC is a quadrant of a circle of radius 14 cm and a semicircle is drawn with BC as diameter. Find the area of the shaded region.



13. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose sides are 7/5 of the corresponding sides of the first triangle.

14. Prove that "The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides."

BOARD EXAM REVISION TEST NO. 12
CLASS: X : MATHEMATICS

M.M. 30 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

1. An unbiased die is thrown. What is the probability of getting (i) an even number (ii) a multiple of 3

2. Find the probability of getting 53 Fridays in a leap year.

3. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is *double* that of a red ball, determine the number of blue balls in the bag.

SECTION – B(3 marks each)

4. Find the mode of the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Number of students	4	10	28	36	50

5. Find the mean age from the following distribution :

Age(in years)	25-29	30-34	35-39	40-44	45-49	50-54	55-59
No. of persons	4	14	22	16	6	5	3

6. Two dice are thrown together. Find the probability that the product of the numbers on the top of the dice is (i) 6 (ii) 12 (iii) 7

7. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) an ace card (ii) a red card (iii) red or king card.

SECTION – C(4 marks each)

8. The median of the following data is 28.5. Find the values of *x* and *y*, if the total frequency is 60.

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	5	x	20	15	y	5

9. Draw more than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Students	5	8	6	10	6	6

10. Cards are marked with numbers 4, 5, 6, …….50 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5. (iv) a number divisible by 2 or 3.

BOARD EXAM REVISION TEST NO. 12
CLASS: X : MATHEMATICS

M.M. 30 Marks **T.T. 1 hr**

SECTION – A(2 marks each)

1. An unbiased die is thrown. What is the probability of getting (i) an even number (ii) a multiple of 3

2. Find the probability of getting 53 Fridays in a leap year.

3. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is *double* that of a red ball, determine the number of blue balls in the bag.

SECTION – B(3 marks each)

4. Find the mode of the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Number of students	4	10	28	36	50

5. Find the mean age from the following distribution :

Age(in years)	25-29	30-34	35-39	40-44	45-49	50-54	55-59
No. of persons	4	14	22	16	6	5	3

6. Two dice are thrown together. Find the probability that the product of the numbers on the top of the dice is (i) 6 (ii) 12 (iii) 7

7. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) an ace card (ii) a red card (iii) red or king card.

SECTION – C(4 marks each)

8. The median of the following data is 28.5. Find the values of *x* and *y*, if the total frequency is 60.

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	5	x	20	15	y	5

9. Draw more than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Students	5	8	6	10	6	6

10. Cards are marked with numbers 4, 5, 6, …….50 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5. (iv) a number divisible by 2 or 3.

BOARD EXAM REVISION TEST NO. 13

CLASS: X : MATHEMATICS

M.M. 30 Marks **T.T. 1 hr**

SECTION – B(2 marks each)

1. A box contains cards numbered 11 to 123. A card is drawn at random from the box. Find the probability that the number on the drawn card is (i) a square number (ii) a multiple of 7.

2. A box contains 12 balls of which some are red in colour. If 6 more red balls are put in the box and a ball is drawn at random, the probability of drawing a red ball doubles than what it was before. Find the number of red balls in the bag.

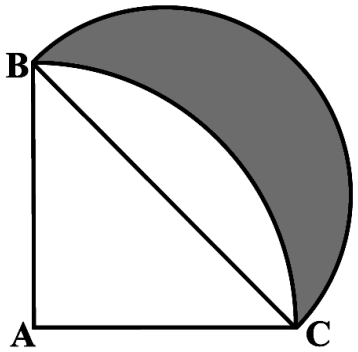
3. A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm. Find the height of the cylinder.

SECTION – C(3 marks each)

4. Find the mode of the following distribution of marks obtained by the students in an examination:

Marks	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No. of Students	15	18	21	29	17

5. In the below figure, ABC is a quadrant of a circle of radius 14 cm and a semicircle is drawn with BC as diameter. Find the area of the shaded region.



6. Water in a canal, 6 m wide and 1.5 m deep, is flowing with a speed of 10 km/h. How much area will it irrigate in 30 minutes, if 8 cm of standing water is needed?

7. A cone of maximum size is carved out from a cube of edge 14 cm. Find the surface area of the remaining solid after the cone is carved out.

SECTION – D(4 marks each)

8. The following distribution shows the dialy pocket allowance of children of a locality. The mean pocket allowance is Rs. 18. Find the missing frequency k.

Daily pocket allowance (in Rs.)	11–13	13–15	15–17	17–19	19–21	21–23	23–25
No. of Students	3	6	9	13	k	5	4

9. The following frequency distribution shows the distance (in metres) thrown by 68 students in a Javelin throw competition.

Distance (in m)	0–10	10–20	20–30	30–40	40–50	50–60	60–70
No. of Students	4	5	13	20	14	8	4

Draw a less than type Ogive for the given data and find the median distance thrown using this curve.

10. A metallic right circular cone 20 cm high and whose vertical angle is 60° is cut into two parts at the middle of its height by a plane parallel to its base. If the frustum so obtained be drawn into a wire of diameter 1/16 cm, find the length of the wire.

BOARD EXAM REVISION TEST NO. 14

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Express 156 as a product of its prime factors

2. Given that HCF (306, 657) = 9, find LCM (306, 657).

SECTION – B(2 marks each)

3. Use Euclid's division algorithm to find the HCF of 504 and 980.

4. A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be (i) red ? (ii) not green?

5. 16 cards, numbered 1, 2, 3, ..., 16 are put in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the card drawn bears (i) an even number (ii) a perfect square number.

6. Prove that $\sqrt{5}$ is an irrational

SECTION – C(3 marks each)

7. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

8. Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

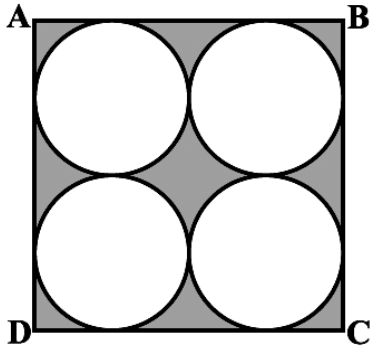
9. If two zeroes of the polynomial $2x^4 - 3x^3 - 3x^2 + 6x - 2$ are $\sqrt{2}$ and $-\sqrt{2}$, find the other zeroes of the polynomial.

10. Find the mode of the following frequency distribution:

Marks	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Students	15	30	45	12	18

11. Prove that the parallelogram circumscribing a circle is a rhombus.

12. In the given figure ABCD is a square of side 14 cm. Find the area of the shaded region.



SECTION – D(4 marks each)

13. Construct a triangle of sides 5 cm, 6 cm, 7 cm and then a triangle similar to it whose sides are $\frac{7}{5}$ of the corresponding sides of the first triangle, also write the steps of construction.

14. The following distribution gives the daily income of 50 workers of a factory.

Daily income (in Rs.)	100 – 120	120 – 140	140 – 160	160 – 180	180 – 200
No. of workers	12	14	8	6	10

Convert the distribution above to a less than type cumulative frequency distribution, and draw its ogive.

15. Prove that "The ratio of the areas of two similar triangles is equals to the squares of the ratio of their corresponding sides."

BOARD EXAM REVISION TEST NO. 15

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Express 3825 as a product of its prime factors

2. The HCF of two numbers is 145 and their LCM is 2175. If one number is 725, then find the other number.

SECTION – B(2 marks each)

3. Find the HCF and LCM of 6, 72 and 120, using the prime factorisation method.

4. Cards are numbered from 4 , 5 , 6 , ... , 20. One card is drawn at random. Find the probability that the card having a perfect square number.

5. A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is (i) an ace (ii) a face card

6. Prove that $\sqrt{3}$ is an irrational

SECTION – C(3 marks each)

7. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

8. Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$.

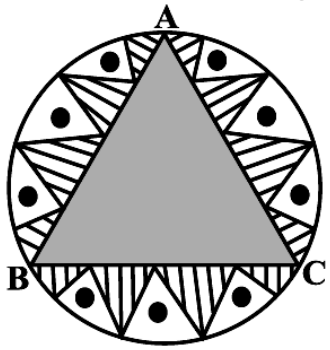
9. Draw more than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Number of students	5	8	6	10	6	6

10. Prove that the parallelogram circumscribing a circle is a rhombus.

11. Prove that "The lengths of the two tangents from an external point to a circle are equal."

12. In a circular table cover of radius 32 cm, a design is formed leaving an equilateral triangle ABC in the middle as shown in below figure. Find the area of the design.



SECTION – D(4 marks each)

13. Construct a triangle of sides 5 cm, 6 cm, 7 cm and then a triangle similar to it whose sides are $\frac{3}{5}$ of the corresponding sides of the first triangle, also write the steps of construction.

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

15. The lengths of 40 leaves of a plant are measured correct to the nearest millimetre, and the data obtained is represented in the following table :

Length (in mm)	118-126	127-135	136-144	145-153	154-162	163-171	172-180
No. of leaves	3	5	9	12	5	4	2

Find the median length of the leaves.

BOARD EXAM REVISION TEST NO. 16

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Express 140 as a product of its prime factors

2. If HCF(6, a) = 2 and LCM(6, a) = 60 then find the value of a.

SECTION – B(2 marks each)

3. Find the HCF of 96 and 404 by the prime factorisation method. Hence, find their LCM.

4. Cards are numbered from 2 , 3 , 4 , ... , 16. One card is drawn at random. Find the probability that the card having a (i) perfect square number (ii) an even number.

5. A bag contains 4 red balls, 5 white balls and 6 green balls. A ball is drawn at random from the bag. Find the probability that the ball drawn is (i) red (ii) not green

6. Prove that $\sqrt{2}$ is an irrational

SECTION – C(3 marks each)

7. Draw the graphs of the equations $5x - y = 5$ and $3x - y = 3$. Determine the co-ordinates of the vertices of the triangle formed by these lines and the y axis.

8. If two zeroes of the polynomial $2x^4 - 3x^3 - 3x^2 + 6x - 2$ are $\sqrt{2}$ and $-\sqrt{2}$, find the other zeroes of the polynomial.

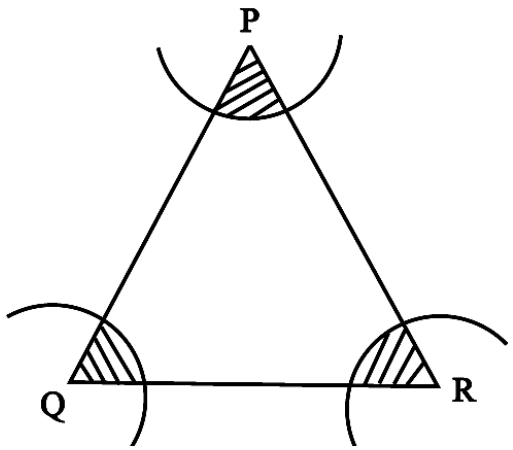
9. Draw more than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Number of students	5	8	6	10	6	6

10. Prove that the parallelogram circumscribing a circle is a rhombus.

11. Prove that "The lengths of the two tangents from an external point to a circle are equal."

12. In the below figure, arcs have been drawn with radii 14 cm each and with centres P, Q and R. Find the area of the shaded region.



SECTION – D(4 marks each)

13. Construct a triangle of sides 5 cm, 6 cm, 7 cm and then a triangle similar to it whose sides are $\frac{4}{5}$ of the corresponding sides of the first triangle, also write the steps of construction.

14. Prove that "The ratio of the areas of two similar triangles is equals to the squares of the ratio of their corresponding sides."

15. Find the median height of 60 students from the following data:

Height (in cm)	120 – 130	130 –140	140 –150	150 – 160	160 –170
No.of students	2	8	12	20	8

BOARD EXAM REVISION TEST NO. 17

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Express 156 as a product of its prime factors

2. Given that HCF (306, 657) = 9, find LCM (306, 657).

SECTION – B(2 marks each)

3. Find the HCF of 96 and 404 by the prime factorisation method. Hence, find their LCM.

4. A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is (i) an ace (ii) a face card

5. Cards, numbered 2, 3, ..., 16 are put in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the card drawn bears (i) an even number (ii) a perfect square number.

6. Prove that $\sqrt{5}$ is an irrational

SECTION – C(3 marks each)

7. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

8. If two zeroes of the polynomial $2x^4 - 3x^3 - 3x^2 + 6x - 2$ are $\sqrt{2}$ and $-\sqrt{2}$, find the other zeroes of the polynomial.

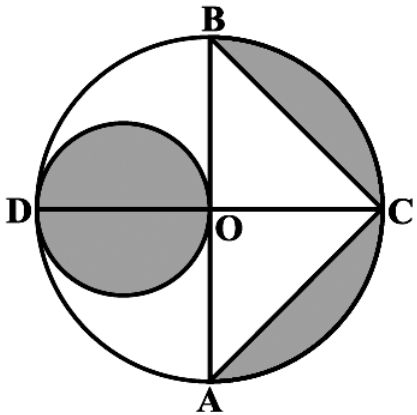
9. The following distribution shows the daily pocket allowance of children of a locality. The mean pocket allowance is Rs 18. Find the missing frequency f.

Daily pocket allowance (in Rs)	11 – 13	13 – 15	15 – 17	17 – 19	19 – 21	21 – 23	23 – 25
No. of children	7	6	9	13	f	5	4

10. Prove that the parallelogram circumscribing a circle is a rhombus.

11. Prove that "The tangent to a circle is perpendicular to the radius through the point of contact."

12. In the below figure, AB and CD are two diameters of a circle perpendicular to each other and OD is the diameter of the smaller circle. If OA = 7 cm, find the area of the shaded region.



SECTION – D(4 marks each)

13. Construct a triangle of sides 5 cm, 6 cm, 7 cm and then a triangle similar to it whose sides are $\frac{7}{5}$ of the corresponding sides of the first triangle, also write the steps of construction.

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

15. Find the median height of 50 students from the following data:

Height (in cm)	120 – 130	130 –140	140 –150	150 – 160	160 –170
No.of students	2	8	12	20	8

BOARD EXAM REVISION TEST NO. 18

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Express 156 as a product of its prime factors

2. The HCF of two numbers is 145 and their LCM is 2175. If one number is 725, then find the other number.

SECTION – B(2 marks each)

3. Use Euclid's division algorithm to find the HCF of 504 and 980.

4. Cards are numbered from 4 , 5 , 6 , ... , 20. One card is drawn at random. Find the probability that the card having (i) a perfect square number (ii) an even number.

5. A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is (i) an ace (ii) a face card

6. Prove that $\sqrt{3}$ is an irrational

SECTION – C(3 marks each)

7. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

8. If two zeroes of the polynomial $2x^4 - 3x^3 - 3x^2 + 6x - 2$ are $\sqrt{2}$ and $-\sqrt{2}$, find the other zeroes of the polynomial.

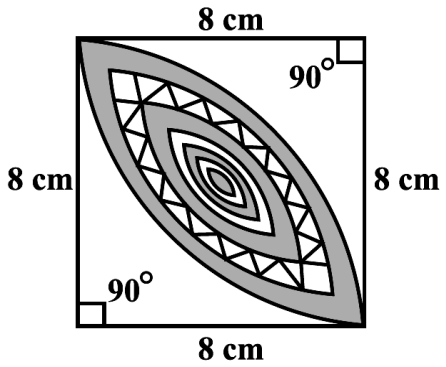
9. Draw less than ogive for the following frequency distribution:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Number of students	5	8	6	10	6	6

10. Prove that the parallelogram circumscribing a circle is a rhombus.

11. Prove that "The tangent to a circle is perpendicular to the radius through the point of contact."

12. Calculate the area of the designed region in below figure, common between the two quadrants of circles of radius 8 cm each.



SECTION – D(4 marks each)

13. Construct a triangle of sides 5 cm, 6 cm, 7 cm and then a triangle similar to it whose sides are $\frac{7}{5}$ of the corresponding sides of the first triangle, also write the steps of construction.

14. Prove that "The ratio of the areas of two similar triangles is equals to the squares of the ratio of their corresponding sides."

15. The lengths of 40 leaves of a plant are measured correct to the nearest millimetre, and the data obtained is represented in the following table :

Length (in mm)	118-126	127-135	136-144	145-153	154-162	163-171	172-180
No. of leaves	3	5	9	12	5	4	2

Find the median length of the leaves.

BOARD EXAM REVISION TEST NO. 19

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Use Euclid's division algorithm to find the HCF of 135 and 225.

2. Find the HCF of 96 and 404 by the prime factorisation method.

SECTION – B(2 marks each)

3. Cards are numbered from 3, 4, 5, ... , 30. One card is drawn at random. Find the probability that the card having (i) a perfect square number (ii) an even number.

4. A card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) a king of red colour (ii) a spade

5. Prove that $\sqrt{5}$ is an irrational

SECTION – C(3 marks each)

6. Draw the graphs of the equations $5x - y = 5$ and $3x - y = 3$. Determine the co-ordinates of the vertices of the triangle formed by these lines and the y axis.

7. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial g(x), the quotient and remainder were $x - 2$ and $-2x + 4$, respectively. Find g(x).

8. Find the mean age from the following distribution :

Age(in years)	25-29	30-34	35-39	40-44	45-49	50-54	55-59
No. of persons	4	14	22	16	6	5	3

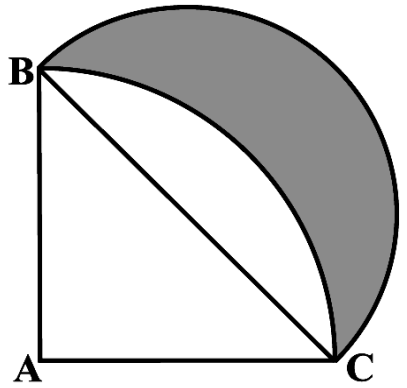
9. Prove that the parallelogram circumscribing a circle is a rhombus.

10. Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

11. Show that any positive odd integer is of the form 6q + 1, or 6q + 3, or 6q + 5, where q is some integer.

12. Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle.

13. In the below figure, ABC is a quadrant of a circle of radius 14 cm and a semicircle is drawn with BC as diameter. Find the area of the shaded region.



SECTION – D(4 marks each)

14. Prove that "The ratio of the areas of two similar triangles is equals to the squares of the ratio of their corresponding sides."

15. Draw more than ogive of the following data:

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

BOARD EXAM REVISION TEST NO. 20

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Use Euclid's division algorithm to find the HCF of 867 and 255

2. Explain why $7 \times 11 \times 13 + 13$ is composite number.

SECTION – B(2 marks each)

3. Find the HCF of 192 and 808 by the prime factorisation method. Hence, find their LCM.

4. A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is (i) an ace or spade (ii) a black face card

5. Cards, numbered 2, 3, ..., 16 are put in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the card drawn bears (i) an even number (ii) a perfect square number.

6. Prove that $3-2\sqrt{5}$ is an irrational

SECTION – C(3 marks each)

7. Draw the graphs of the equations $5x - y = 5$ and $3x - y = 3$. Determine the co-ordinates of the vertices of the triangle formed by these lines and the y axis.

8. If two zeroes of the polynomial $2x^4 - 3x^3 - 3x^2 + 6x - 2$ are $\sqrt{2}$ and $-\sqrt{2}$, find the other zeroes of the polynomial.

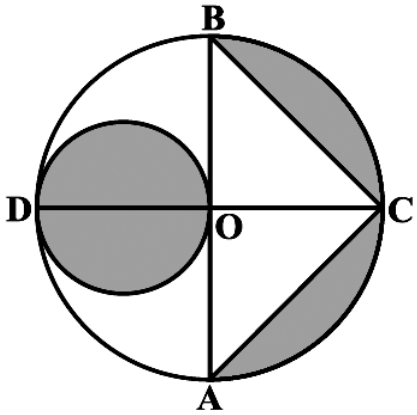
9. Find the mode of the following frequency distribution:

Marks	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Students	15	45	30	12	18

10. Prove that the parallelogram circumscribing a circle is a rhombus.

11. Prove that "The tangent to a circle is perpendicular to the radius through the point of contact."

12. In the below figure, AB and CD are two diameters of a circle perpendicular to each other and OD is the diameter of the smaller circle. If OA = 7 cm, find the area of the shaded region.



SECTION – D(4 marks each)

13. Construct a triangle of sides 5 cm, 6 cm, 7 cm and then a triangle similar to it whose sides are $\frac{7}{4}$ of the corresponding sides of the first triangle, also write the steps of construction.

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

15. Find the median height of 50 students from the following data:

Height (in cm)	120 – 130	130 –140	140 –150	150 – 160	160 –170
No.of students	2	12	8	8	20

BOARD EXAM REVISION TEST NO. 21

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Find the 10th term of the AP : 2, 7, 12, . . .

2. Check whether 4^n can end with the digit 0 for any natural number n.

SECTION – B(2 marks each)

3. Cards are numbered from 4, 5, 6, ... , 50. One card is drawn at random. Find the probability that the card having (i) a perfect square number (ii) an odd number.

4. A card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) a black king (ii) a red face card.

5. Prove that $2-5\sqrt{3}$ is an irrational

SECTION – C(3 marks each)

6. Which term of the AP : 3, 15, 27, 39, . . . will be 132 more than its 54th term?

7. How many terms of the AP : 24, 21, 18, . . . must be taken so that their sum is 78?

8. Find the zeroes of the quadratic polynomial $x^2 - 2x - 8$, and verify the relationship between the zeroes and the coefficients.

9. A student noted the number of cars passing through a spot on a road for 100 periods each of 3 minutes and summarised it in the table given below. Find the mode of the data :

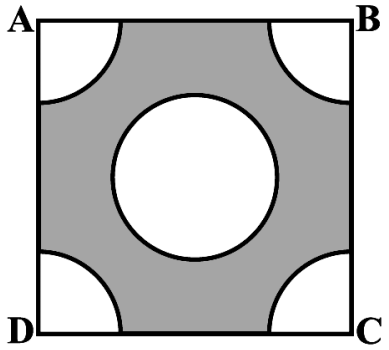
Number of cars	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	7	14	13	12	20	11	15	8

10. Use Euclid's division lemma to show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m.

11. Prove that "The lengths of the two tangents from an external point to a circle are equal."

12. Draw a circle of radius 3 cm. Take two points P and Q on one of its extended diameter each at a distance of 7 cm from its centre. Draw tangents to the circle from these two points P and Q.

13. From each corner of a square of side 4 cm a quadrant of a circle of radius 1 cm is cut and also a circle of diameter 2 cm is cut as shown in below figure. Find the area of the remaining portion of the square.



SECTION – D(4 marks each)

14. Prove that "The ratio of the areas of two similar triangles is equals to the squares of the ratio of their corresponding sides."

15. Convert the distribution below gives the weights of 30 students of a class to less than type cumulative frequency distribution and draw its ogive. Hence, find the median weight of the students.

Weight (in kg)	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75
Number of students	2	3	8	6	6	3	2

BOARD EXAM REVISION TEST NO. 22

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Find the 20^{th} term from the last term of the AP: 3,8,13,… 253.

2. If HCF(a, b) = 12 and a x b = 1800, then find LCM(a, b).

SECTION – B(2 marks each)

3. Cards are numbered from 3, 4, 5, ... , 50. One card is drawn at random. Find the probability that the card having (i) a perfect square number (ii) an odd number.

4. A card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) neither king nor queen card (ii) a red face card or a spade card.

5. Prove that $5\sqrt{2}$ is an irrational

SECTION – C(3 marks each)

6. In a flower bed, there are 23 rose plants in the first row, 21 in the second, 19 in the third, and so on. There are 5 rose plants in the last row. How many rows are there in the flower bed?

7. How many terms of the AP : 9, 17, 25, . . . must be taken to give a sum of 636?

8. Verify whether 2, 3, $\frac{1}{2}$ are the zeroes of the polynomial p(x) = $2x^3 - 11x^2 + 17x - 6$.

9. Show that any positive even integer is of the form 6q, or 6q + 2, or 6q + 4, where q is some integer.

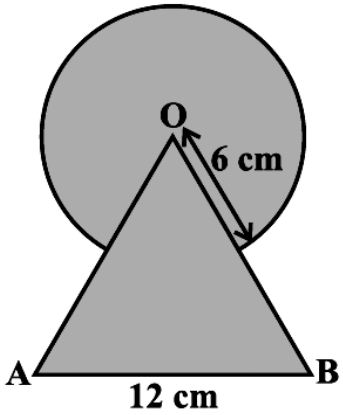
10. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively. Find the sides AB and AC.

11. Draw a triangle ABC with side BC = 6 cm, AB = 5 cm and $\angle$ABC = 60°. Then construct a triangle whose sides are $\frac{4}{3}$ of the corresponding sides of the triangle ABC.

12. Find the modal weight of the students.

Weight (in kg)	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75
Number of students	2	3	8	6	6	3	2

13. Find the area of the shaded region in the below figure, where a circular arc of radius 6 cm has been drawn with vertex O of an equilateral triangle OAB of side 12 cm as centre.



SECTION – D(4 marks each)

14. Prove that "If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then the other two sides are divided in the same ratio."

15. The following table gives production yield per hectare of wheat of 100 farms of a village.

Production yield (in kg/ha)	50-55	55-60	60-65	65-70	70-75	75-80
Number of farms	2	8	12	24	38	16

Change the distribution to a more than type distribution, and draw its ogive.

BOARD EXAM REVISION TEST NO. 23

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. Find the 11^{th} term from the last term of the AP: 10,7,4,. ., –62.

2. Use Euclid's division algorithm to find the HCF of 96 and 404.

SECTION – B(2 marks each)

3. A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is 2/3. Find the number of blue balls in the jar.

4. A card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) a space or an ace card (ii) neither red face card nor a spade card.

5. Find the HCF and LCM of 6, 72 and 120, using the prime factorisation method.

SECTION – C(3 marks each)

6. Find the sum of first 24 terms of the list of numbers whose nth term is given by $a_n = 3 + 2n$

7. A manufacturer of TV sets produced 600 sets in the third year and 700 sets in the seventh year. Assuming that the production increases uniformly by a fixed number every year, find : (i) the production in the 1st year (ii) the production in the 10th year (iii) the total production in first 7 years

8. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.

9. PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T. Find the length TP.

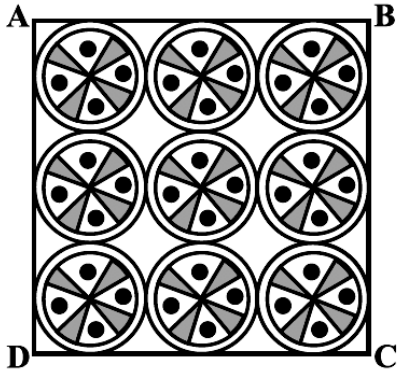
10. Draw a line segment AB of length 8 cm. Taking A as centre, draw a circle of radius 4 cm and taking B as centre, draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle.

11. Divide $3x^2 – x^3 – 3x + 5$ by $x – 1 – x^2$, and verify the division algorithm.

12. Find the modal production yield of a village.

Production yield (in kg/ha)	50-55	55-60	60-65	65-70	70-75	75-80
Number of farms	2	8	12	24	38	16

13. On a square handkerchief, nine circular designs each of radius 7 cm are made (see below figure). Find the area of the remaining portion of the handkerchief.



SECTION – D(4 marks each)

14. Prove that "The ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides."

15. For the following distribution, covert the less than cumulative frequency to more than type cumulative frequency distribution and hence draw an ogive.

Marks	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60
No. of Students	6	15	29	41	60	70

BOARD EXAM REVISION TEST NO. 24

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. For what value of p, are 2p + 1, 13, 5p – 3 three consecutive terms of an AP?

2. The HCF and LCM of two numbers are 9 and 360 respectively. If one number is 45, write the other number.

SECTION – B(2 marks each)

3. By using Euclids algorithm find the largest number which divides 650 and 1170.

4. 15 cards, numbered 1, 2, 3, ..., 15 are put in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the card drawn bears (i) an even number (ii) a number divisible by 2 or 3.

5. A bag contains 5 red, 4 blue and 3 green balls. A ball is taken out of the bag at random. Find the probability that the selected ball is (i) of red colour (ii) not of green colour.

SECTION – C(3 marks each)

6. If the sum of first n terms of an AP is given by $Sn = 3n^2 + 2n$, find the nth term of the AP.

7. If the sum of first 4 terms of an AP is 40 and that of first 14 terms is 280, find the sum of its first n terms.

8. Prove that $\sqrt{5}$ is an irrational number.

9. Find the zeroes of the quadratic polynomial $6x^2 – 3 – 7x$ and verify the relationship between the zeroes and the coefficients of the polynomial.

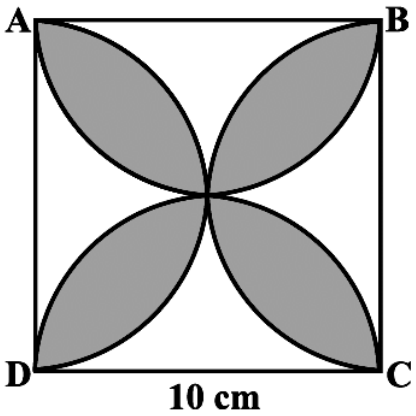
10. Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are 2/3 of the corresponding sides of the first triangle.

11. Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

12. Find the mode of the following distribution:

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	8	7	12	28	20	10	10

13. Find the area of the shaded design in the below figure, where ABCD is a square of side 10 cm and semicircles are drawn with each side of the square as diameter. (Use $\pi = 3.14$)



SECTION – D(4 marks each)

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

15. Draw 'less than ogive' and 'more than ogive' for the following distribution and hence find its median.

Class	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	25	15	10	6	24	12	8

BOARD EXAM REVISION TEST NO. 25

CLASS: X : MATHEMATICS

M.M. 50 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. If p/q is a rational number ($q \neq 0$), what is condition of q so that the decimal representation of p/q is terminating?

SECTION – B(2 marks each)

2. By using Euclids algorithm find the largest number which divides 650 and 1170.

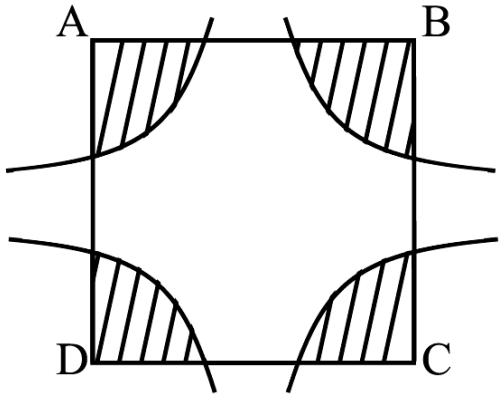
3. The length of the minute hand of a clock is 14 cm. Find the area swept by the minute hand in 5 minutes.

4. Find the ratio between the LCM and HCF of 5, 15 and 20.

SECTION – C(3 marks each)

5. Prove that the parallelogram circumscribing a circle is a rhombus.

6. In the below figure, arcs have been drawn of radius 21 cm each with vertices A, B, C and D of quadrilateral ABCD as centres. Find the area of the shaded region.



7. Divide the polynomial $x^4 - 9x^2 + 9$ by the polynomial $x^2 - 3x$ and verify the division algorithm.

8. If one zero of the quadratic polynomial $f(x) = 4x^2 - 8kx + 8x - 9$ is negative of the other, then find zeroes of $kx^2 + 3kx + 2$.

9. Prove that $\sqrt{2} + \sqrt{3}$ is an irrational number.

10. The 8th term of an Arithmetic Progression (AP) is 37 and its 12th term is 57. Find the AP.

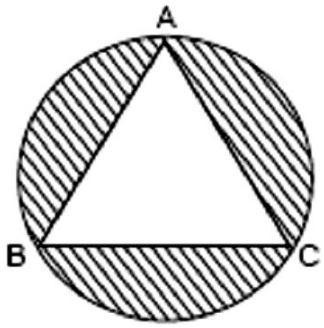
11. How many terms of the AP 3, 5, 7, ... must be taken so that the sum is 120?

12. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

13. The perpendicular from A on side BC of a ΔABC intersects BC at D such that DB = 3 CD. Prove that $2AB^2 = 2AC^2 + BC^2$.

SECTION – D(4 marks each)

14. In given figure, an equilateral triangle has been inscribed in a circle of radius 6 cm. Find the area of the shaded region. [Use $\pi = 3.14$]



15. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose sides are 7/5 of the corresponding sides of the first triangle.

16. If the sum of first 6 terms of an AP is 36 and that of the first 16 terms is 256, find the sum of first 10 terms.

17. Prove that "If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio".

BOARD EXAM REVISION TEST NO. 26

CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1½ hr**

SECTION – A(1 mark each)

1. If the nth term of the A.P. –1, 4, 9, 14, …… is 129, find the value of n.

2. Determine the value of p and q so that the prime factorisation of 2520 is expressible as $2^3 \times 3^p \times q \times 7$.

SECTION – B(2 marks each)

3. If HCF of 144 and 180 is expressed in the form of 13m – 3, find the value of m.

4. Cards, numbered 3, 4, 5 ..., 25 are put in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the card drawn bears (i) an even number (ii) a number divisible by 2 or 3.

5. From a pack of 52 playing cards, Jacks and Kings of red colour and Queens and Aces of black colour are removed. The remaining cards are mixed and a card is drawn at random. Find the probability that the drawn card is (i) a black Queen (ii) a card of red colour

SECTION – C(3 marks each)

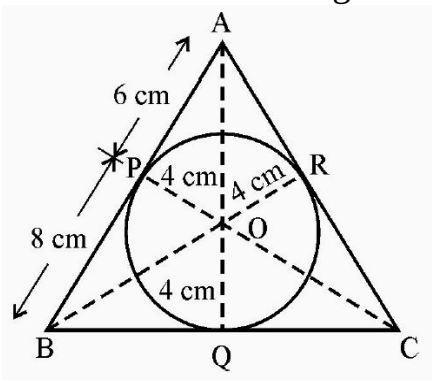
6. Find the sum of 50 terms of an AP whose third term is 5 and the seventh term is 9.

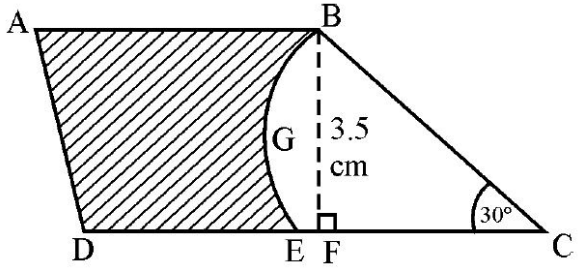
7. For what value of n are the nth terms of two A.P.'s 63, 65, 67, … and 3, 10, 17, … equal ?

8. Prove that $\sqrt{3}+\sqrt{5}$ is an irrational number.

9. Draw an isosceles triangle ABC in which the base BC is 8 cm long and its altitude AD through A is 4 cm long. Then draw another triangle whose sides are 2/3 of the corresponding sides of $\angle ABC$.

10. In the below figure, the radius of incircle of ABC of area 84 cm^2 is 4 cm and the lengths of the segments AP and BP into which side AB is divided by the point of contact P are 6 cm and 8 cm. Find the lengths of the sides AC and BC.





11. In the above right sided figure, ABCD is a trapezium with AB || DC and $\angle BCD = 30^0$. If BGEC is a sector of a circle with centre C and AB = BC = 7 cm, DE = 4 cm and BF = 3.5 cm, then find the area of the shaded region

12. Find the zeroes of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeroes and the coefficients of the polynomial.

13. Find the mode of the following distribution:

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	8	5	7	28	12	20	10	10

SECTION – D(4 marks each)

14. Prove that "In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

15. Draw 'less than ogive' and 'more than ogive' for the following distribution and hence find its median.

Class	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	10	15	25	8	12	25	6