JAMAICA_10th Grade Math
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- Example: Find HCF, given LCM and two numbers (1 Mark)

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- Practice Test

- Test your skill1

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- Example: Determine if given rational number is terminating or non-terminating (1 Mark)

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- Example: Express decimal in rational form (1 Mark)

- Practice Test

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- Tutorial: Sets and Set Notations

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- Example: Change set-builder form to list form

- Example: Change set-builder form to list form

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- Example: Change list form into set-builder form

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- Practice Test1

- Test Your Skill

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- Practice Test1

- Test Your Skill

- Test Your Skill

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- Example: Identify the given statement is true or false

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- Example: Identify whether given statement is true or false

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- Practice Test1

- Test Your Skill

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- Example: Find the complement of given set

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- Practice Test1

- Test Your Skill

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- Tutorial: Venn Diagrams

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- Test Your Skill

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- Tutorial: Cyclic Quadrilaterals

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- Practice Test1

- Test Your Skill

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- Tutorial: Angle Subtended by a Chord at a Point

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- Tutorial: Tangent to a Circle

- Tutorial: Circles and its Related Terms

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- Example: Find angle between the tangents if central angle is known (2)

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- Example: Find x + y from given figure (2)

- Example: Find distance of external point from centre (3)

- Example: Find value of angle from given figure (2)

- Practice Test

- Test Your Skill

3.7 Number of Tangents to a Circle

- Tutorial: Number of Tangents to a Circle

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- Example: Find length of tangent (1)

- Example: Find length of line segments if a circle is inscribed in a triangle (3)
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- Example: Find length of a side of a quadrilateral which circumscribes a circle (4)
- Example: Find sides of a triangle which circumscribes a circle of given radius (5)
- Example: Given radius of 2 concentric circles, find length of a tangent to inner circle (3)
- Example: Find side of a quadrilateral circumscribing a circle (4)
- Example: Find angle between the tangents (3)
- Example: Find distance btw point of contacts of common tangent to two circles (2)
- Example: Find length of tangent (1)
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- Practice Test
- Test Your Skill

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- Tutorial: Construct Tangents to a Circle

4. Area Related to Circles

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- Tutorial: Perimeter and area of a circle
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- Example: Given speed, find number of revolutions made by car wheel in minutes (3 Marks)
- Example: Find diameter, given perimeter of protractor (1 Mark)
- Example: Find area whose circumference is given (1 Mark)
- Example: Find cost of fencing a circular track (3 Marks)
- Example: Find area of quadrant if circumference is given (2 Marks)
- Example: Find cost of ploughing a circular field (3 Marks)
- Example: Find radius of circle having area equal to sum of areas of 2 circles (2 Marks)
- Example: Find area of shaded region (3 Marks)
- Example: Find length of wire to fence a circular flower bed (1 Mark)

- Example: Find area of colored portion (2 Marks)

- Example: Find radius if circumference and area are equal (1 Mark)

- Example: Find area between the concentric circles (1 Mark)

- Example: Find the diameter of the sphere, given its surface area

- Example: Find length of a pendulum (3)

- Practice Test

- Test Your Skill

4.2 Areas of Sector and Segment of a Circle

- Tutorial: Areas of sector and segment of a circle

- Example: Find area of shaded region (2 Marks)

- Example: Find area between ribs of umbrella (3 Marks)

- Example: Find area covered by minute hand (2 Marks)

- Example: Find area of corners of a triangular field (1 Mark)

- Example: Find area of minor and major segment (3 Marks)

- Example: Find area of shaded region(semi circle in quadrant) (3 Marks)

- Example: Find area of sea over which ships are warned (3 Marks)

- Example: Find area of sector of brooch (6 Marks)

- Example: Find area cut off from vertices of a trapezium (1 Mark)

- Example: Find area of shaded region inside an equilateral triangle (6 Marks)

- Example: Find length of an arc if area is given (3 Marks)

- Example: Find radius if length of arc & area of sector are known (1 Mark)

- Example: Find area of region between 2 sectors (2 Marks)

- Example: Find area cleaned by 2 wipers (1 Mark)

- Example: Find radius of circle if length of arc is known (1 Mark)

- Example: Find area of sector (1 Mark)

- Example: Find area of four corners of a rectangle (1 Mark)

- Example: Find ratio of areas of two sectors (1 Mark)

- Example: Find ratio of length of arc to circumference of circle (1 Mark)

- Example: Given the radius of a circle and angle subtended by an arc, find the length of an arc, area of sector & area of segment

- Example: Find the area of corresponding segment of the circle

- Example: Find the cost of making the design at the given rate

- Example: Find length of a pendulum (3)

- Practice Test

- Test Your Skill

4.3 Areas of Special Figures

- Tutorial: Areas of special figures

- Example: Find area of shaded region (2 Marks)

- Example: Find area of shaded region (triangle cut from quadrant) (2 Marks)

- Example: Find area of shaded region between quadrant and semi circle (2 Marks)

- Example: Find area of shaded region and express in Pi (2 Marks)

- Example: Find area of shaded region if side square is given (3 Marks)

- Example: Find area of shaded region (square with circles at opposite vertices) (3 Marks)

- Example: Find area of shaded region (3 Marks)

- Example: Find area of shaded region (3 Marks)

- Example: Find area of shaded region

- Example: Find area of shaded region

- Example: Find area of the remaining portion of the square

- Example: Find the area of the design

- Example: Find the distance around the track and the area of the track

- Example: Find the area of the remaining portion of the handkerchief

- Example: Calculate the area of the designed region in common between two quadrants

- Practice Test

- Test Your Skill

5. Solids/Three Dimensional Figures

5.1 Visualising Shapes

- Tutorial: Visualising Shapes

- Example: Identify top, front, side views of given solid (3)

5.2 Surface Area and Volume of a Cuboid and a Cube

- Tutorial: Surface area and volume of a cuboid and a cube

- Example: Find the height of cuboid when its volume and area of its base is given (1)

- Example: Find surface area of a cube when its volume is given (1)

- Example: Find the surface area of cuboid made by joining 3 cubes (2)
- Example: Find dimensions of cuboid when its TSA & ratio of sides are given (2)
- Example: Find volume of cuboid when area of four walls & height is given (3)
- Example: Find the dimensions of a cuboid when difference in covering rates are given (4)
- Example: Find area of base of cuboid when its TSA and LSA are given (2)
- Example: Find the TSA of all small cubes made from a big cube (2)
- Example: Find volume of box formed by folding a sheet (2)
- Example: How many cubes can be placed in a box? (2)
- Example: Find surface area of cuboid if l + b + h and length of diagonal are known (3)
- Example: Application problem based on the volume water falling into sea (5)
- Example: Find the area of sheet required to make a box & cost of sheet
- Example: Find the ht. of the wall of a rectangular hall
- Example: How many bricks can be painted out of the container?
- Example: Which box has larger LSA & smaller TSA ?
- Example: How much tarpaulin is required to make a shelter of given dimensions?
- Example: Find the area of the glass
- Example: Find the cost of cardboard required for supplying given no. of boxes
- Example: Determine the dimensions of the box
- Example: Determine the cost of painting inner surface of the box
- Example: Determine length & breadth of a box
- Example: Determine the cost of distempering the walls of a hall from inside
- Example: Determine the breadth & height of a water tank
- Example: Determine how much level of piece of land will be raised
- Example: How much high would the cubical vessel be made to hold given quantity of liquid?
- Example: Find the number of bricks
- Example: Find the volume of the structure build by the child
- Example: Determine the rise in water level
- Example: For how many days the water of given tank lasts
- Example: Determine the weight of wood
- Example: Find the speed of flowing petrol
- Example: Find the area irrigated

- Example: Find the area irrigated

- Practice Test1

- Practice Test2

- Practice Test3

- Practice Test4

- Test your Skill

5.3 Surface Area and Volume of a Right Circular Cylinder

- Tutorial: Surface area and volume of a right circular cylinder

- Example: Find diameter of cylinder when its CSA and height are given (1)

- Example: Find cost of painting a cylindrical pillar (3)

- Example: Find number of rods which can be made from given mass of iron (3)

- Example: Find area of sheet required to make a cylindrical tank (2)

- Example: Find area leveled by a roller (2)

- Example: Find capacity of a cylindrical vessel (3)

- Example: Find volume of cylinder when its CSA and height are given (4)

- Example: Find radius of cylinder when its volume and ratio of r:h are given (4)

- Example: Find ratio of volumes of 2 cylinders given ratio of their radii & heights (4)

- Example: Find ratio of volumes of reduced cylinder to original cylinder (4)

- Example: Find length of wire given CSA of cylinder & diameter of wire (4)

- Example: Find the inner SA, outer SA & TSA of metal pipe

- Example: Find the ht. of a cylinder given its CSA and radius of its base

- Example: Find the area of chart paper required to make cylindrical kaleidoscope

- Example: Find the total radiating surface in the system

- Example: Find the inner CSA & cost of plasting this curved surface

- Example: Find the CSA of a closed cylinder

- Example: Find how much cloth is req. for covering the lampshade

- Example: How much cardboard was req. to be bought for the competition?

- Example: Determine the ratios of the volume of two cylinders

- Example: Determine the timber that can be obtained from the log of wood

- Example: Determine the cost of leveling

- Example: Which tin has more capacity

- Example: How much concrete mixture is required to build cylindrical pillar?

- Example: How much money does stall keeper receive by selling the juice completely?

- Example: Find the mass of the pipe

- Example: Which container has greater capacity and by how much?

- Example: Find the inner CSA, radius of base & capacity of the vessel

- Example: Find the volume of the wood & that of graphite

- Example: How much soup the hospital has to prepare daily to serve patients?

- Example: Determine the height of embankment

- Example: Determine the diameter of the base of a new solid cylinder

- Example: Determine the cost of excavation of the cylindrical hole

- Example: Find the outer and inner radii of the pipe

- Practice Test

- Test your Skill

5.4 Surface Area and Volume of a Right Circular Cone

- Tutorial: Surface area and volume of a right circular cone

- Example: Find curved surface area of cone (1)

- Example: Find total surface area of cone (2)

- Example: Find the ratio of volumes of 2 cones given ratio of their radii (1)

- Example: Find area of sheet required to make joker's caps (4)

- Example: Find the diameter of base of cone when its volume is given (1)

- Example: Find the volume of cone made by rotating a triangle (5)

- Example: Find capacity of a conical vessel (3)

- Example: Find the volume of the cone when its base area and height are given (1)

- Example: Determine the volume of cone

- Example: Find the capacity of a conical pit

- Example: Find the ht., slant ht. & CSA of a cone

- Example: Find the volume of the tent

- Example: Find the area of the canvas required

- Example: Determine the volume & TSA of a remaining cylinder

- Example: Determine the weight of the pillar

- Example: How long will it take to fill a conical vessel

- Practice Test
- Test your Skill

5.5 Surface Area and Volume of a Sphere

- Tutorial: Surface area and volume of a sphere
- Example: Find the radius of sphere whose surface area is given (1)
- Example: Find the height of cone made by recasting a sphere (5)
- Example: Find the volume of sphere whose surface area is given (2)
- Example: Find ratio of surface area of 2 spheres (2)
- Example: Find capacity of a hemispherical bowl (1)
- Example: Find cost of painting a hollow hemispherical vessel (4)
- Example: Find number of cylindrical bottles filled from liquid in hemispherical bowl (5)
- Example: Find cost of tin plating of hemispherical bowl (3)
- Practice Test
- Test your Skill

5.6 Prism

- Tutorial: Prism
- Example: Find LSA & TSA of a right prism of triangular base
- Example: Find LSA, TSA & volume of a right prism
- Example: Find LSA & TSA of a prism of equilateral triangular base with given side& given the volume of prism
- Example: Find LSA & TSA of a prism of isosceles triangular base with given sides & given the volume of prism
- Example: Find the cost of making a wooden box in the shape of a triangular prism whose base is rt. triangle
- Example: Find the cost of tiles required for lateral faces of n pillar
- Example: How much would the company pay for the advertisement on the walls of pillars in shape of triangular prism
- Example: Find LSA & TSA of a prism of equilateral triangular base with given side& given the ht. of prism
- Example: Find LSA & TSA of a prism of rt. triangular base with given side & area of base & volume of prism
- Example: Find LSA of the prism given the perimeter of the base & its height

- Example: Find the length of each side of base of prism given the area of base(equilateral triangle)

5.7 Pyramid and Regular Octahedron

- Tutorial: Pyramid and Regular Octahedron
- Example: Find the slant ht. of pyramid given the length of an edge of a regular triangular pyramid
- Example: Find the ht., LSA & volume of pyramid given the measure of each side of a regular triangular pyramid
- Example: Find the volume of pyramid given its ht. & area of its base
- Example: In a regular pyramid(P - ABC), given the length of each edge. Find PG if G is centroid of Triangle ABC
- Example: Find LSA & TSA of triangular pyramid given length of each side of base & slant ht.
- Example: Find the length of median, ht. of AG & PG, area of tri ABC & volume of pyramid given edge of pyramid
- Example: Find the volume of triangular pyramid given each side of base & ht. of pyramid
- Example: Find the measure of each side of base of pyramid given its LSA & slant ht.

6. Reflection and Transformation

6.1 Reflection

- Tutorial: Reflection
- Example: Find coordinates of image of point when reflected in x axis (1)
- Example: Find coordinates of image of given point when reflected in given line (1)
- Example: Find coordinates of image of given point under reflection in y-axis (1)
- Example: Find coordinates of point when reflected under given line (1)
- Example: Find coordinates of image of point when reflected under origin (1)
- Example: Find reflection of triangle with known vertices in x axis (3)
- Example: Find coordinates of image of point under reflection in x-axis, y-axis and origin (3)
- Example: Find coordinates of image of point under reflection in y-axis/x-axis followed by reflection in origin (2)
- Example: Find value of a and b if point (a,b) is reflected to known position (2)
- Example: Write the coordinates of the vertices of reflected triangle (3)
- Practice Test1
- Practice Test2

- Practice Test3
- Test Your Skill

6.2 Size Transformation

- Tutorial: Transformation
- Example: Find scale factor if a triangle is enlarged (3)
- Example: Find area of image of triangle if original area and scale factor is known (2)
- Example: Find scale factor if a triangle is reduced (3)
- Example: If original and enlarged area is known, find scale factor of enlargement (2)
- Example: If scale is known, find actual measurements of plot (4)
- Example: If scale is known, find actual area of the plot (3)
- Example: Find length & area of actual ship if scale of model is known (4)
- Example: Find length and volume of actual ship if scale of model is known (4)
- Practice Test
- Test Your Skill

7. Trigonometry

7.1 Trigonometric Ratios

- Tutorial: Trigonometric ratios
- Example: Determine all trigonometric ratio if sides are given (2 Marks)
- Example: Determine all trigonometric ratio if sides are given (2 Marks)
- Example: Determine all trigonometric ratio of indicated angle (2 Marks)
- Example: If $a\cot\theta = b$, find value of trigonometric expression (1 Mark)
- Example: Find θ if $\sin\theta = n\cos\theta$ (1 Mark)
- Example: Find value of trigonometric ratio (1 Mark)
- Example: Find $(a^2) + 1/(a^2)$ if $a + (1/a)$ is known (1 Mark)
- Example: If $a\cot\theta = b$, find value of trigonometric expression (1 Mark)
- Example: Find $\sin\theta, \sec\theta$ given $15\cot\theta = 8$ (2 Marks)
- Example: Evaluate (2 Marks)
- Example: If $4\tan\theta = 3$, find the value of trigonometric expression (2 Marks)
- Example: Given a trigonometric ratio , find value of trigonometric expression (3 Marks)
- Example: Given a side and sum of other two sides find trigonometric ratios (3 Marks)
- Example: Given $\cot\theta$ evaluate expression in sine and cos (3 Marks)

- Example: Given secθ = a/b, find all trigonometric ratio of θ

- Example: Given acotθ = b, find sinθ and secθ

- Example: If cosα = a/b, evaluate the given expression

- Practice Test

- Test Your Skill

7.2 Trigonometric Ratios of Specific Angles

- Tutorial: Trigonometric ratios of specific angles

- Example: Find sides of triangle if a side and angle are known (1 Mark)

- Example: Find A and B, if sin(A - B) and cos(A - B) are known (2 Marks)

- Example: Find value of expression (1 Mark)

- Example: Find value of θ, given equation in tanθ (1 Mark)

- Example: Find value of θ, given equation in tanθ (2 Marks)

- Example: Find value of θ, given equation in cosθ (2 Marks)

- Example: Find angles if sides are known (2 Marks)

- Example: Find value of expression (1 Mark)

- Example: Find value of θ, given equation in sine (2 Marks)

- Example: Given a side and an angle find the length of other side (1 Mark)

- Example: Find value of trigonometric ratio if θ is given (1 Mark)

- Example: Find value of 'A' from an equation in trigonometric ratios (1 mark)

- Example: Given a side and an angle find the length of other side (1 Mark)

- Example: Given tanθ + cotθ, find (tan^5)θ + (cot^5)θ (3 Marks)

- Example: Find side of a triangle inscribed in a circle of given radius (3 Marks)

- Example: Find length of diagonal of rhombus of given side (3 Marks)

- Example: Given tanθ + cotθ, find (tan^5)θ + (cot^5)θ (3 Marks)

- Example: Find the value of x, given a trigonometric equation

- Example: If sinA = a/b, find the value of sec2A

- Practice Test

- Test Your Skill

7.3 Heights and Distances

- Tutorial: Heights and distances

- Example: Distance of ship from lighthouse (6 Marks)

- Example: Distance between cars on opposite sides of tower given angles of depression (6 Marks)

- Example: Find height of tree and width of road (6 Marks)

- Example: Find angle of elevation (1 Mark)

- Example: Find vertical distance between 2 aeroplanes (6 Marks)

- Example: Given angles of depression and distance between 2 ships, find height of light house (6 Marks)

- Example: Find height of tower given angles of elevation which are complementary (6 Marks)

- Example: Find speed of airplane (6 Marks)

- Example: Find height of building (1 Mark)

- Example: Find distance of boat from a point on surface (1 Mark)

- Example: Find height of tower (2 Marks)

- Example: Find height of pole (1 Mark)

- Example: Determine height of billboard (3 Marks)

- Example: Find angle of elevation of a tower (1 Mark)

- Example: Find height of tower (1 Mark)

- Example: Find height of building if observed from tower (6 Marks)

- Example: Find width of river as observed from helicopter (6 Marks)

- Example: Find height of tower (Observer height is given) (6 Marks)

- Example: Find height of pedestal on which a statue is placed (6 Marks)

- Example: Find height of pillar as seen from other pillar (6 Marks)

- Example: Find height of tower from top of a building (6 Marks)

- Example: Find height of the tree

- Example: Find distance between 2 ships as seen from an aeroplane (6 Marks)

- Example: Find height of poles on either side of road & distance from point of observation (6 Marks)

- Example: Find height of tower

- Example: Find the distance traveled by the balloon during the interval

- Example: Find the length of the slide

- Example: Find the length of the string

- Practice Test

- Test Your Skill

8. Arithmetic Progressions

8.1 General Term of an Arithmetic Progression

- Tutorial: General term of an arithmetic progression
- Example: Which term of given A.P is 81 (2 Marks)
- Example: Find no. of terms in AP (2 Marks)
- Example: Find general term (1 Mark)
- Example: Given any two terms of A.P & mth term is more than nth term, find A.P (3 Marks)
- Example: Is 184 term of given A.P? (2 Marks)
- Example: Which term is more than 'x' term (2 Marks)
- Example: Given nth term find if it is an A.P (2 Marks)
- Example: Find term of an A.P given a and d (2 Marks)
- Example: Identify if given sequence is arithmetic (2 Marks)
- Example: Applications on repayment of loan (3 Marks)
- Example: Which term is first negative term (2 Marks)
- Example: Find nth term of A.P (3 Marks)
- Example: Find n so that nth term of two A.P's is same (3 Marks)
- Example: Find nth term from end of A.P (2 Marks)
- Example: Find A.P whose one term is 3 times the other given term (3 Marks)
- Example: Given nth term find 'd' (2 Marks)
- Example: If m times mth term is equal to r times rth term find nth term (3 Marks)
- Example: Applications on angles in A.P (3 Marks)
- Example: Find the middle term of the given A.P.
- Example: Find am-an for given A.P (3 Marks)
- Example: Find k if three terms are in A.P (1 Mark)
- Example: Applications on numbers in A.P divisible by 6 (3 Marks)
- Example: Find k so that terms are in A.P (1 Mark)
- Example: For what value of k are given terms in A.P (2 Marks)
- Application: Find the number of rows in a flower bed
- Example: Find first 3 terms given nth term (1 Mark)
- Example: Is the given sequence is an A.P.
- Example: Is the sequence with given nth term an A.P (1 Mark)
- Example: Find the common difference of an A.P. given its two terms
- Example: What is the common difference of the given A.P.

- Example: Write first 4 terms of an A.P given a and d (1 Mark)

- Example: Find kth term of given A.P (1 Mark)

- Example: Find k if given value is kth term of the A.P (1 Mark)

- Example: Application on saving on A.P (3 Marks)

- Example: Application on rows of boxes in go down (3 Marks)

- Example: Does the list of numbers in given situation form an A.P (1 Mark)

- Example: Does given statement form A.P, if yes find d (3 Marks)

- Example: Does given statement form A.P, if yes find d (3 Marks)

- Example: Does the list of numbers in given situation form an A.P (1 Mark)

- Example: Application on ball in motion (1 Mark)

- Practice Test

- Test your skill1

9. Quadratic Equations

9.1 Quadratic Equations

- Tutorial: Quadratic equations

- Example: Check if given equation is quadratic (1 Mark)

- Example: Find x, given p(x) = 0 (1 Mark)

- Example: Find p so that x is solution of f(x) = 0 (1 Mark)

- Example: Represent age problem as quadratic equation (1 Mark)

- Example: Solve by factorisation (1 Mark)

- Example: Represent mensuration problem as quadratic equation (1 Mark)

- Example: Represent speed problem as quadratic equation (1 Mark)

- Example: Represent given condition on numbers in form of quadratic equation (1 Mark)

- Example: Find p, if two given equation are satisfied by same value of x (2 Marks)

- Practice Test

- Test your skill1

9.2 Solving Quadratic Equations by Factorization

- Tutorial: Solving quadratic equations by factorization

- Example: Solve quadratic equation of type $a(x^2) + b = 0$ by factorisation (1 Mark)

- Example: Solve quadratic equation of type $a(x^2) + bx + c = 0$ by factorisation (1 Mark)

- Example: Solve quadratic equation of type $a(x^2) + bx + c = 0$ by factorisation (1 Mark)

- Example: Solve for x (2 Marks)
- Example: Solve quadratic equation of type p(x^2) + qx + r = 0 (1 Mark)
- Example: Application based on numbers (3 mks)
- Example: Find the number if sum and product is given (3 Marks)
- Example: Find the number if difference of their squares is known (6 Marks)
- Example: Application on dimensions (2 mks)
- Example: Find the cost and number of articles produced in a cottage industry (6 Marks)
- Example: Find the marks obtained in two subjects in a class test (6 Marks)
- Application: Age Problem
- Application: Application on consecutive integers (2 marks)
- Application: Application on dimensions of rectangle (2 marks)
- Application: Application on dimensions (2 marks)
- Application: Application on sides of triangles (3 marks)
- Application: Application on measure of angles (3 marks)
- Application: Application on distance formula (3 marks)
- Application: Application on area & perimeter of rectangle (3 marks)
- Application: Application on areas and perimeters (3 marks)
- Application: Application on purchase of perfumes (3 marks)
- Application: Application on finding the fraction (3 marks)
- Application: Application on lengths of sides of triangle (3 marks)
- Application: Application on flight of aircraft (6 marks)
- Practice Test
- Test Your Skill

9.3 Solving Quadratic Equations by completing the square

- Tutorial: Solving quadratic equations by completing the square
- Example: Square root property to solve x^2 = a (1 Mark)
- Example: Square root property to solve x^2 = a (1 Mark)
- Example: Square root property to solve a(x^2) - b = c (2 Marks)
- Example: Square root property of type (x+a)^2 = b (2 Marks)
- Example: Square root property of type (x - a)^2 = b (3 Marks)
- Example: Square root property to solve (x - a)^2 + b = c (3 Marks)

- Example: Identify constant to make perfect square (1 Mark)

- Example: Solve (x^2) + bx + c = 0 (2 Marks)

- Example: Solve (x^2) + bx = c (2 Marks)

- Example: Solve (x^2) + bx + c = 0 (2 Marks)

- Example: Solve using complete the square method (2 Marks)

- Example: Solve a(x^2) + bx + c = 0 (3 Marks)

- Example: Solve (ax + b)(x + c) = d (3 Marks)

- Example: Applications on speed of stream (3 Marks)

- Example: Find the root of the given quadratic equation

- Practice Test

- Test your skill1

9.4 Solving Quadratic Equations using Quadratic formula

- Tutorial: Solving quadratic equations using quadratic formula

- Example: Use quadratic formula to solve (x^2) + bx + c = 0 (2 Marks)

- Example: Use quadratic formula to solve a(x^2) + bx + c = 0 (2 Marks)

- Example: Use quadratic formula to solve a(x^2) + b = 0 (2 Marks)

- Example: Solve the equation: ax^2 - bx + c = 0

- Example: Use quadratic formula to solve a(x^2) + bx + c = 0 (2 Marks)

- Example: Find the value of k for which the given equation has equal roots

- Example: Determine the nature of roots of the quadratic equation (2 Marks)

- Example: Applications on gift problem (3 Marks)

- Example: Find sides of rectangular field, given diagonal & one side is longer than other side (6 Marks)

- Example: Find D and nature of its roots (1 Mark)

- Example: Find time to fill the tank (6 Marks)

- Example: Find D (1 Mark)

- Example: Find dimensions of rectangular park (6 Marks)

- Example: Find dimensions of rectangular park (6 Marks)

- Example: Application on whole numbers and its reciprocal (6 Marks)

- Example: Find value of D in the quadratic equation (2 Marks)

- Example: Find p so that equation has real roots (2 Marks)

- Example: Find the roots of the given equation

- Example: Find the roots of the given equation

- Example: Find the roots of the quadratic equation using quadratic formula

- Example: Find k so that equation has equal roots (2 Marks)

- Example: Find k so that equation has equal roots (2 Marks)

- Example: Given 1 root of quadratic eq. find p & substitute in another eq. & find k so that eq. has equal roots (2 Marks)

- Application: Applications on consecutive integers (3 Marks)

- Application: Applications on shares (3 Marks)

- Application: Applications on loading of ships (3 Marks)

- Application: Applications on age problems (3 Marks)

- Application: Speed Problem

- Practice Test

- Test Your Skill

10. Pair of Linear Equation in two variables

10.1 Pair of Equation in two variables

- Tutorial: Pair of equation in two variables

- Example: Identify if given point is solution of given system (1 Mark)

- Example: Represent cost of Items algebraically (1 Mark)

- Example: Identify if given ordered pair is solution of given system (1 Mark)

- Example: Write equations of given axis (1 Mark)

- Example: Find 'a' so that given point lies on the line (1 Mark)

- Example: Check if given values of x, y are solution of given equation (1 Mark)

- Example: Express y in terms of x in the given equation and check if given point is on the line (1 Mark)

- Practice Test

10.2 Graphical method of solving pair of Linear Equation

- Tutorial: Graphical method of solving pair of linear equation

- Example: Find if given pair of linear equations are consistent/inconsistent (2 Marks)

- Example: Find vertices of triangle formed by the given lines (3 Marks)

- Example: Find if given pair of equations are consistent/inconsistent & solve graphically (2 Marks)

- Example: Find 'p' for system of equations to have infinite solutions (2 Marks)

- Example: Find 'k' for unique solutions, given perimeter (1 Mark)

- Example: Check if given pair of equations is parallel, coincident or intersect (2 Marks)
- Example: Find a,b if given pair of equations have infinitely many solutions (2 Marks)
- Example: Find dimensions of garden (2 Marks)
- Example: Without drawing graph determine whether lines will be parallel/intersecting (1 mark)
- Example: Find 'p' for the system of equations to represent parallel lines (1 mark)
- Example: Find value of 'k' for system of equations to have infinite solutions (1 Mark)
- Example: Without solving find if the pair of equations is consistent (1 Mark)
- Example: Find whether the system of equations has any solutions (1 Mark)
- Example: Find value of 'k' if system has unique solutions (1 Mark)
- Example: Write condition for equations to be parallel/coincident/intersecting (1 Mark)
- Example: Find p for which given pair has infinite solution (1 Mark)
- Practice Test
- Test your skill1
- Test your skill2

10.3 Algebraic method of solving pair of linear Equation

- Tutorial: Algebraic method of solving pair of linear equation
- Example: Solve using substitution method (2 Marks)
- Example: Solve for x and y (3 Marks)
- Example: Applications on age problem (3 Marks)
- Example: Applications on two digit no (3 Marks)
- Example: Find 2 numbers from given (2 Marks)
- Example: Solve using cross multiplication (2 Marks)
- Example: Application on two digit number (3 Marks)
- Example: Application on salary and annual increment (3 Marks)
- Example: Application on taxi fare (3 Marks)
- Example: Application on income and expenditure (3 Marks)
- Example: Application on finding angles of a triangle (3 Marks)
- Example: Application on questions in a test (3 Marks)
- Example: Application on upstream/downstream (6 Marks)
- Example: Application on monthly expenses (3 Marks)
- Example: Application on finding l and b of rectangle, if area is known (3 Marks)

- Example: The two given equations have a unique solution, find value of k (2 Marks)

- Example: Find value of k for which given values of x & y is solution of given equation (1 Mark)

- Application: Applications on price of item (3 Marks)

- Application: Applications on % in mixture (3 Marks)

- Application: Applications on upstream/downstream (3 Marks)

- Application: Applications on speed (3 Marks)

- Application: Applications on % in solutions (3 Marks)

- Application: Applications of currency (3 Marks)

- Application: Applications of fractions (3 Marks)

- Application: Applications on library charges (3 Marks)

- Application: Applications on age problem (3 Marks)

- Practice Test1

- Practice Test2

- Test your skill

11. Linear Inequalities

11.1 Properties of Addition and Multiplication

- Tutorial: Properties of addition and multiplication

- Example: Graph x is greater than (-3) on a number line

- Example: Graph $3 \leq (x) \leq 4$ on a number line

11.2 Solutions of Linear Inequalities

- Tutorial: Solutions of linear inequalities

- Example: Graph an inequation on a number line

- Example: Graph (3 + 4x) is less than (3x + 11) on a number

- Example: Graph $4x \leq 16$ on a number

- Example: Graph ((3/4)x - 4) is less than ((4/5)x + 1) on a number

- Example: Write a statement as an inequality

- Example: Write a statement as an inequality

- Example: Graph the solution (4) is less than (2x) is less than (6) on a number

- Example: Graph (- 3) $\leq$ (1 - 2x) $\leq$ 6 on a number

- Example: Solve an inequality (- 12) $\leq$ (4 - (3/-5)x) is less than (2)

- Example: Solve a word problem on an inequality

11.3 Graphing Linear Inequalities in two Variables

- Tutorial: Graphing linear inequalities in two variables

- Example: Graph the solution of (2x - y) is greater than (3)

11.4 Solving System of Linear Inequalities

- Tutorial: Solving system of linear inequalities

- Example: Graph the solution of the given system of linear system of equations

- Example: Graph the solution of the given system of linear system of equations

12. Relations And Functions

12.1 Cartesian Product of Sets

- Tutorial: Cartesian product of sets

- Example: Find the product of two sets

12.2 Relations and Related Terms

- Tutorial: Relations and related terms

- Example: Find the domain and range of the given relation

- Example: Draw graph of a linear equation

- Example: Draw graph of a relation in quadratic form

- Example: Draw the graph of a relation in modulus of a binomial

12.3 Functions and Their Types

- Tutorial: Functions and their types

- Example: Identify the relation as a function

12.4 Some Elementary Functions

- Tutorial: Some Elementary Functions

- Example: Find the value of a function for x = a

- Example: Find the values of a function for x = a, x = b + c

- Example: Find f(a) of a rational function f(x)

- Example: Find f(a) and f(m + n) of absolute valued function

- Example: Find f(a + h) of a rational absolute valued function

- Example: Find f(a) of a piecewise function at a point

- Example: Find f(a) and f(b) of a rational function f(x)

- Example: Find the domain of a rational function

- Example: Find the domain and range of a linear function

- Example: Find the domain of a rational function

13. Graphs of Linear/Non Linear Functions/Equations

13.1 Slope-Intercept Form of a Line

- Tutorial: Slope-Intercept Form of a Line
- Example: Given slope and y-intercept, give the equation of the line
- Example: Give the equation of a line, when its graph is given

13.2 Graphing a Line in the Slope-Intercept Form

- Tutorial: Graphing a Line in the Slope-Intercept Form
- Example: Graph the line y = mx + b
- Example: Given the slope and a point on the line, graph it

13.3 Equation of a line given slope and any point on the line

- Tutorial: Equation of a line given slope and any point on the line
- Example1: Given the slope and a point on the line, find its equation
- Example2: Given a point on a line and a line parallel it, find its equation

13.4 Writing Equations in slope intercept or Standard Form

- Tutorial: Writing Equations in slope intercept or Standard Form
- Example: Write ax + by + c = 0, in slope intercept form
- Example: Write slope intercept form (y = mx +b) as standard form (ax+by=c)

13.5 Equation of a line in Two-point Form

- Tutorial: Writing Equations from given information
- Example: Find the line through (a,b) and (c,d)

13.6 Additional Examples with Pop-up Solution

- Example: Find the equation of line given its slope & y-intercept (0110)
- Example: Find the equation of line given its slope & y-intercept (0208)
- Example: Graph the line given its slope & one of its point (1122)
- Example: Graph the line given its slope & one of its point (1221)
- Example: Graph the line given its slope (undefined) & one of its point (1720)
- Example: Rewrite the equation in slope-intercept form (2326)
- Example: Rewrite the equation in slope-intercept form : ax+by-c=0 (2730)
- Example: Rewrite the equation in standard form : y=ax-b (3132)

13.7 Maximum or Minimum Value of a Quadratic Function

13.8 Graphing A Quadratic Function

13.9 Solving Systems of Non-Linear Equations

14. Statistics and Probability

14.1 Statistics

- Tutorial: Statistics

14.2 Presentation of Data

- Tutorial: Presentation of Data (2)

- Example: Find range of the given data

- Practice Test

- Test Your Skill

14.3 Graphical Representation of Data

- Tutorial: Graphical Representation of Data

- Example: Answer from the histogram (salary) (3)

14.4 Measure of Central Tendency

- Tutorial: Measure of Central Tendency

- Example: Find mean of primes less than given number (2)

- Example: Find mode of given data (basketball team) (1)

- Example: Find median of given data (2)

- Example: Find x if mode is given (1)

- Example: Find x if median is given (2)

- Example: Find x if mean is given (2)

- Example: Find median after finding mean (3)

- Example: If mean of values in x is known, find mean of first three values (3)

- Example: Find excluded number if mean is known (2)

- Example: Find value of p if mean of data is known (4)

- Example: Find nth observation if mean is known (2)

- Example: Find mean weight (2)

- Practice Test

- Test Your Skill

14.5 Mean of Grouped Data

- Tutorial: Mean of Grouped Data

- Example: Find mean of increased values (2)

- Example: Find n if sum of deviations is known (3)

- Example: Find mean using step deviation method (3)

- Example: Find missing frequency (4)
- Example: Find missing frequencies if mean & total frequency are known (5)
- Example: Find frequency of given class interval (1)
- Example: Find sum of deviations from mean (1)
- Practice Test
- Test Your Skill

14.6 Mode of Grouped Data

- Tutorial: Mode of Grouped Data
- Example: Find mode of given data (3)
- Example: Find missing frequencies if mode & total frequency are known (5)
- Example: Find mode of given data (3)
- Example: Find mode of given data (1)
- Example: Find lower limit of modal class (1)
- Example: Find modal life of components (4)
- Practice Test
- Test Your Skill

14.7 Median of Grouped Data

- Tutorial: Median of Grouped Data
- Example: Find median of given data (4)
- Example: Find missing frequencies, if median is known (5)
- Example: Calculate median (less than) (4)
- Example: Find the median of the given data (1)
- Example: Find mean if mode & median are known (2)
- Example: Find mode if mean & median are known (3)
- Practice Test
- Test Your Skill