E-MATH

Teacher's Resource Material

Orlando A. Oronce
Marilyn O. Mendoza
Authors

Published & Distributed by
REX Book Store
856 Nicanor Reyes, Sr. St.
Tel. Nos. 736-05-67 • 735-13-64
1977 C.M. Recto Avenue
Tel. Nos. 735-55-27 • 735-55-34
Manila, Philippines
www.rexpublishing.com.ph

10

RBS Mathematics Series
E-Math 10
ISBN 978-971-23-6946-9
Classification: Teacher's Resource Material (53-MB-00139-0)

Published, copyrighted 2015, and distributed by **Rex Book Store, Inc. (RBSI)** with main office at 856 Nicanor Reyes Sr. St., Sampaloc, Manila / Tel. Nos.: 735-1364, 736-0567

RBSI Branches:

LUZON

•**MORAYTA:** 856 N. Reyes Sr. St., Sampaloc, Manila / Tel. Nos.: 736-0169, 733-6746; Telefax: 736-4191 •**RECTO:** 2161-65 Freedom Building, C.M. Recto Avenue, Sampaloc, Manila / Tel. Nos.: 522-4521, 522-4305, 522-4107, 733-8637 •**RECTO (La Consolacion):** Mendiola, Manila • **MAKATI:** Unit UG-2, Star Centrum Bldg., Sen. Gil Puyat Ave., Makati City / Tel. No.: 818-5363; Telefax: 893-3744 •**ROCKWELL:** 1st Floor, Ateneo Professional School, Rockwell Center, Bel-Air, Makati City / Tel. No.: 729-2015 •**CUBAO:** Unit 10 UGF, Doña Consolacion Bldg., Gen. Santos Ave., Araneta Center, Cubao, Quezon City /Telefax: 911-1070 •**ORTIGAS:** G/F East Tower, Philippine Stock Exchange Center, Exchange Road, Ortigas Center, Pasig City / Tel. No.: (02) 650-4347 •**CAVITE:** Block 4, Lot 20 Don Gregorio Heights 2, Zone 1-A Aguinaldo Highway, Dasmariñas, Cavite / Telefax: (046) 416-1824 •**CAVITE (Tanza):** (Display Area) Block 5, Lot 6, City View 4 and 5, Brgy. Tanauan, Tanza, Cavite •**NAGA:** 1-1A Geronimo Bldg., Barlin St., Sta. Cruz, Naga City, Camarines Sur/Telefax: (054) 811-6878 •**LEGAZPI:** Unit 6, 3rd Floor, A. Bichara Silverscreen, Legazpi City, Albay / Telefax: (052) 480-2244 •**CALAPAN:** Brgy. Salong, National Highway, Calapan City, Oriental Mindoro / Telefax: (043) 288-1650 •**BATANES:** L. Lopez St., Kayvalugan, Basco, Batanes •**TUGUEGARAO:** 10 Arellano Ext., Brgy. Ugac Sur, Tuguegarao, Cagayan / Telefax: (078) 844-8072 •**CABANATUAN:** Fontelera Building, 1271 Del Pilar Ext., Sangitan East, Cabanatuan City, Nueva Ecija / Tel. No.: (044) 464-2151; Telefax: (044) 600-5684 •**URDANETA:** Zone 6, Pinmaludpod, Urdaneta City, Pangasinan / Telefax: (075) 568-3975 •**ANGELES:** Unit H, JMS Bldg., MacArthur Highway, Brgy. Salapungan, Angeles City, Pampanga/Telefax: (045) 887-5371 • **BAGUIO:** Rex Hall Student Residences, Upper Gen. Luna cor. A. Bonifacio St., Baguio City, Benguet / Tel. No.: (074) 422-0574

VISAYAS

•**TACLOBAN:** Brgy. 74 Marasbaras, Tacloban City, Leyte / Tel. No.: (053) 323-8976; Telefax: (053) 523-1784 •**ILOILO:** 75 Lopez Jaena St., Brgy. San Isidro, Jaro, Iloilo City, Iloilo / Tel. No.: (033) 329-0332; Telefax: (033) 329-0336 •**BACOLOD:** 28 Brgy. 36, Purok Immaculada, Quezon Ave., Bacolod City, Negros Occidental •**CEBU:** 11 Sanciangko St., Cebu City / Tel. Nos.: (032) 416-9684, 254-6773, 505-4313; Telefax: (032) 254-6466

MINDANAO

•**CAGAYAN DE ORO:** J. Seriña St. cor. Vamenta Blvd., Carmen, Cagayan de Oro City, Misamis Oriental / Telefax: (088) 858-6775, 309-5881 •**DAVAO:** 156 C.M. Recto St., Davao City, Davao / Tel. Nos.: (082) 300-5422, 305-5772; Telefax: (082) 221-0272 •**GENERAL SANTOS:** Aparente St., Dadiangas Heights, General Santos City, South Cotabato / Telefax: (083) 554-7102 • **ZAMBOANGA:** San Francisco Loop, Mayor Agan Ave., Camino Nuevo B, Zamboanga City / Tel. No.: (062) 955–0887

www.rexpublishing.com.ph

INTERNET LINK DISCLAIMER

REX PUBLISHING is not responsible for the accuracy, legality or content of the external sites and for that of subsequent links. These links are being provided as a convenience and for informational purposes only. Although verified at the date of publication, the publisher cannot guarantee that these links will work all of the time nor does it have control over the availability of linked pages.

Moreover, the publisher does not warrant sites or the servers that make them available are free of viruses or other harmful components. REX PUBLISHING does not warrant or make any representations regarding the use or the results of the use of the materials in these sites or in third-party sites in terms of their correctness, accuracy, timeliness, reliability or otherwise.

RBSI's Book Association Memberships: Philippine Booksellers Association, Inc. (PBAI); Book Development Association of the Philippines (BDAP); Philippine Educational Publishers Association (PEPA); Book Exporters Association of the Philippines (BEAP); Academic Booksellers Association of the Philippines (ABAP); Children's Literature Association of the Philippines, Inc. (CLAPI); Asian Publishers Resources Center (APRC)

PEPA's International Book Association Memberships: International Publishers Association (IPA); Asia Pacific Publishers Association (APPA); ASEAN Book Publishers Association (ABPA); Philippine Book Publishing Development Federation (Philbook)

Printed by REX PRINTING COMPANY, INC.

84-86 P. Florentino St., Sta. Mesa Heights, Quezon City / Tel. No.: 857-7777

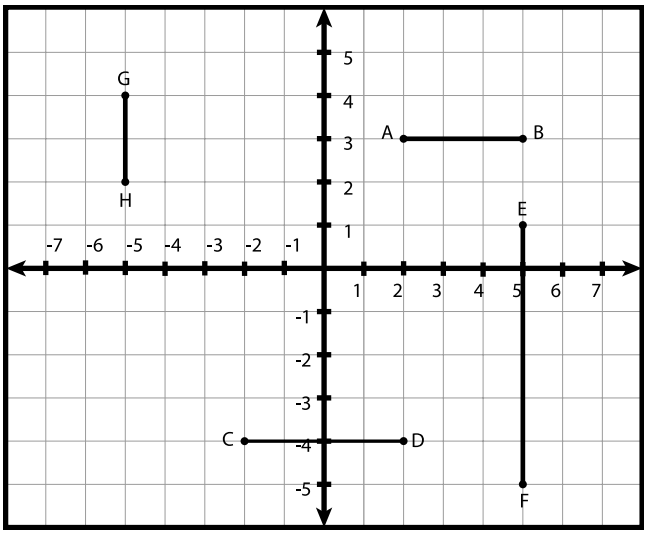
Lesson 4.1: The Distance Formula (2 Days)

Introduction:

1. Give some exercises on plotting point on the coordinate plane. Recall the Pythagorean Theorem, perimeter, area, and definition of betweenness.

2. Perform the activity in the Exploration.

A. The diagram below shows 4 line segments:



1. Complete the table to find the lengths of the line segments.

Segment	Coordinates of End Points	Length
AB	$A(2, 3), B(5, 3)$	$5 - 2 = 3$ units
CD		
EF		
GH		

2. Using the concept of finding the distance of horizontal and vertical lines in no. 1, answer each of the following:

   a. If the coordinates of the endpoints of the horizontal line segment AB are $A(x_1, k)$ and $B(x_2, k)$ where $x_2 > x_1$, $AB =$ _____. (AB is the length of $\overline{AB}$).

   b. If the coordinates of the endpoints of the vertical line segment CD are $C(h, y_1)$ and $D(h, y_2)$ where $y_2 > y_1$, $CD =$ _____.

Knowledge:
- The Distance Postulate
- Number Line
- Pythagorean Theorem
- Area and Perimeter
- Properties of geometric figures
- Coordinate plane
- Ordered Pairs

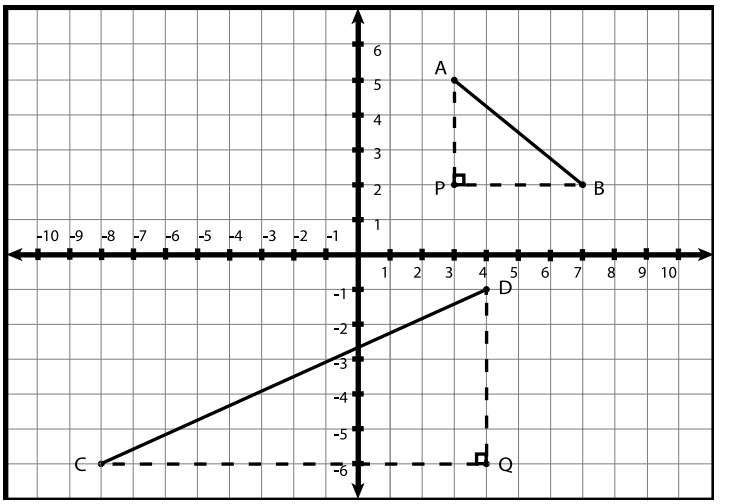
Skills:
- Plotting points on the coordinate plane
- Deriving inductively the distance formula
- Proving geometric properties using the distance formula

KU:
The distance formula is an application of the Pythagorean Theorem.

KQ:
- How could you derive the distance formula?
- How would you find the distance between two points?

Points of Integration:
Perimeter

B. The diagram below shows 2 line segments: $\overline{AB}$ and $\overline{CD}$.



1. Find AB and CD by completing the calculations below.

   a. The coordinates of A, B, and P are A(,), B(,), and P(,).

   $AP =$
   $BP =$
   $AB^2 = AP^2 + BP^2$
   $= \_\_\_\_ + \_\_\_\_$
   $= \_\_\_\_ + \_\_\_\_$
   $AB = \_\_\_\_$

   b. The coordinates of C, D, and Q are C(,), D(,), and Q(,).

   $CQ =$
   $DQ =$
   $CD^2 = CQ^2 + DQ^2$
   $= \_\_\_\_ + \_\_\_\_$
   $= \_\_\_\_ + \_\_\_\_$
   $CD = \_\_\_\_$

Body:

1. Derive the Distance Formula as presented in the book.
2. Discuss *Examples 1, 2, 3,* and *4*.
3. Work on "Try it 1."

More resources on **Acquisition Strategies** are available in the **Technology Enhancement CD**

4. Discuss *Example 5*. (Note: Definition of Betweenness- If B is between A and C, then AB + BC = AC.)
5. Use *Vocabulary and Concepts, Practice and Application I* (odd nos. only and *II* (10 and 11), *III* (16 and 17), and *IV* (22 and 23) as Do - Now activity.

More resources on **Practice Strategies** are available in the **Technology Enhancement CD**

Conclusion:

1. Work on the worksheet at the end of the lesson plan.
2. In pairs, answer the Writing exercises.
3. As a final activity let the students complete the statement below. If the coordinates of P and Q are P(a, b) and Q (c, d), then PQ is equal to:

   a. _____ when $\overline{PQ}$ is a horizontal segment,

   b. _____ when $\overline{PQ}$ is a vertical segment, and

   c. _____ when $\overline{PQ}$ is neither a horizontal nor a vertical segment.

Worksheet 1 Name: _____

The Distance Formula

1. Find PQ
   a. P(3, 5), Q(3, -2)
   b. P(-2, 6), Q(-7, 7)

2. Find the length of each side of ΔEXP. Tell whether ΔEXP is isosceles, right, or neither.
   a. $E(0, 8), X(9, 6), P(8, 10)$
   b. $E(1, 8), X(6, -4), P(11, 8)$

3. Find the perimeter of triangle ΔEXP
   a. $E(0, 8), X(9, 6), P(8, 10)$
   b. $E(1, 8), X(6, -4), P(11, 8)$

4. Show that the diagonals of □CUTE are congruent for $C(5, -1), U(9, -1), T(9, 0)$, and $E(5, 0)$.

Worksheet 2 Name: _____

The Distance Formula

1. Find PQ
   a. P(-3, 1), Q(3, 9)
   b. P(-8, 0), Q(16, -24)

2. Find the length of each side of ΔEXP. Tell whether ΔEXP is isosceles, right, or neither.
   a. $E(3, 3), X(5, 8), P(7, 3)$
   b. $E(-1, 1), X(-4, -3), P(3, -2)$

3. Find the perimeter of triangle ΔEXP
   a. $E(3, 3), X(5, 8), P(7, 3)$
   b. $E(-1, 1), X(-4, -3), P(3, -2)$

4. A triangle has vertices S(-2, 5), U(3, -8), and N(8, 5). Find the length of the length of the altitude to the shortest side.

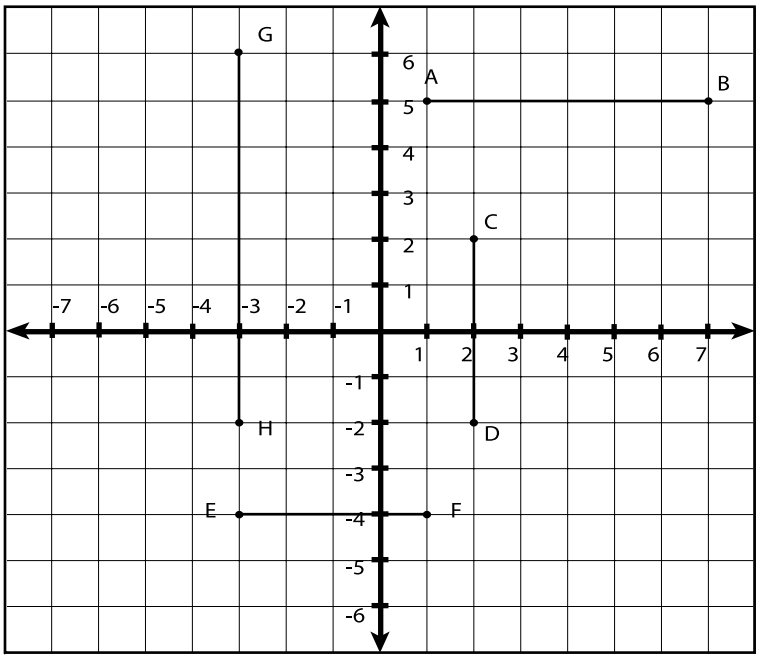
Lesson 4.2: The Midpoint Formula (2 Days)

Introduction:

1. Assess students' prior knowledge on plotting and locating the coordinate plane. Recall: midpoint

2. Perform the activity in the *Exploration*

A. The diagram below shows 4 line segments: $\overline{AB}$, $\overline{CD}$, $\overline{EF}$, and $\overline{GH}$.



1. Complete the table to find the coordinates of the midpoints of the line segments. Let P, Q, R, and S be the midpoints of $\overline{AB}$, $\overline{CD}$, $\overline{EF}$, and $\overline{GH}$ respectively.

Segment	Coordinates of End Points	Coordinates of Midpoints	
AB	$A(1, 5), B(7, 5)$	$x = \frac{1+7}{2}$ or 4 ; $y = 5$	$P(4, 5)$
CD			Q( )
EF			R( )
GH			S( )

Knowledge:
- Average
- Coordinate Plane
- Ordered Pairs
- Midpoint of a segment

Skills:
- Plotting points on the coordinate plane
- Locating the midpoint of a segment
- Comparing perimeters
- Calculating distance

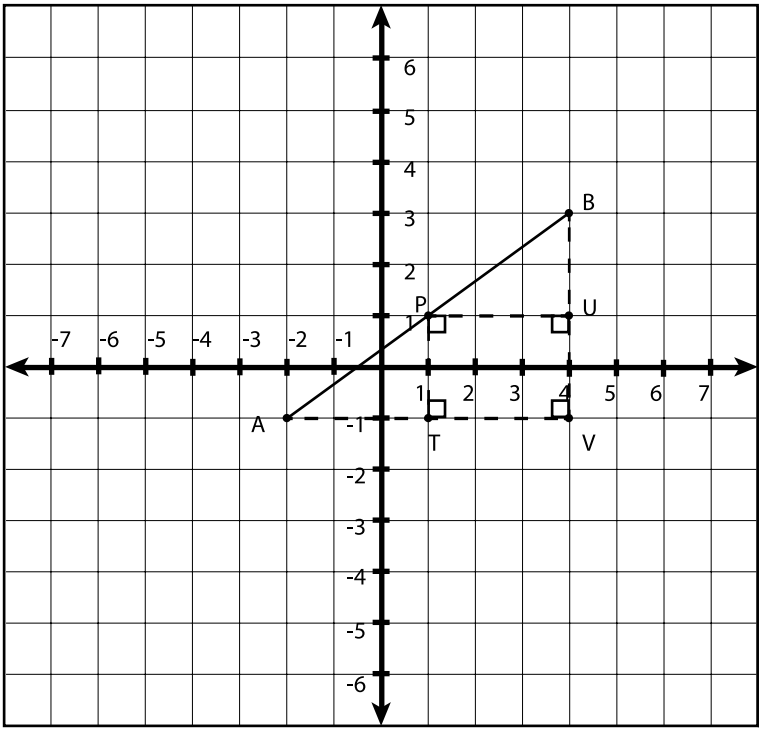
KU:
There are possible relationship between midpoint and bisector.

KQ:
How can the midpoint of a segment be explored with the coordinate plane?

Points of Integration:
- Writing Proofs
- Median

2. If the coordinates of the endpoints of the horizontal line segment AB are $A(x_1, k)$ and $B(x_2, k)$, then the midpoint P has coordinates P( ).

   If the coordinates of the endpoints of the vertical line segment CD are $C(h, y_1)$ and $D(h, y_2)$, then the midpoint Q has coordinates P( ).



1. Find the coordinates of the midpoint P of $\overline{AB}$ by completing the calculations below:

   a. The coordinates of A, B, and V are A( ) , B( ), and V( )

   For the coordinates of T : x = _____

   y = _____

   Thus, T has coordinates T( )

   For the coordinates of U : x = _____

   y = _____

   Thus, U has coordinates U( )

b. Using the coordinates of T and U in 1.a , find the coordinates of the midpoint P, P( ).

2. Using the coordinates of A and B , the coordinates of P are:

x = _____
y = _____
P( )

Body:

1. Discuss the Midpoint Formula as presented in the book.
2. Discuss *Examples 1* and *2.*
3. Work on "Try it 1."
4. Discuss *Example 3*.
5. Work on "Try it 2."
6. Do the *Vocabulary and Concepts, Practice and Application I, III, and IV* (21) as Do - Now activity.

More resources on **Acquisition Strategies** are available in the **Technology Enhancement CD**

More resources on **Practice Strategies** are available in the **Technology Enhancement CD**

Conclusion:

1. Work on the worksheet given at the end of the lesson plan.
2. In pairs, answer *Writing* (*1* and *2*) and *Enrichment.*

Worksheet 2 Name: _____
The Midpoint Formula

1. E is the midpoint of $\overline{PT}$. Find the coordinates of either P or T in each of the following:

   a. E(5, 4), P(8, 2)

   b. E(2, -1), P(6, 3)

   c. E(1, 5), T(4, 7)

   d. E(–2, 4), T(4, 9)

   e. $E\left(\frac{1}{2}, \frac{1}{2}\right)$, $P(4,0)$

2. Answer the following:

   a. In ΔFAR, the coordinates of the vertices are F(10, 5), A(8, 0), and R(2, 5). Find the lengths of the three medians of the triangle.

   b. S(1, 1), O(9, 1), I(11, 6) and L(3, 6) are vertices of $\square SOIL$.

(a). Find the coordinates of the midpoints of $\overline{SI}$ and $\overline{OL}$.

(b). What is true for the two segments in a.

3. Given two point K(-12, 0), and T(4, -3). Explain how to find the points that divide segment KT into four congruent segments.

Lesson 4.3: Placing Figures in the Coordinate Plane (3 Days)

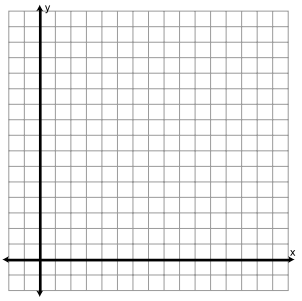
Introduction:

1. Coordinate Geometry was introduced by Descartes' and Fermat in the 17th century. Recall the different properties of isosceles triangle, equilateral triangle, median of triangle, midline of trapezoid, midpoint, distance, slope, parallel lines, perpendicular lines, and properties of special parallelogram.

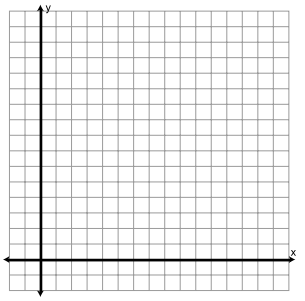
2. Perform the activity in the *Exploration*.

1. Three vertices of parallelogram ABCD are given. Find the coordinate of the fourth vertex. Draw the parallelogram with the given vertices. Then determine the most precise name for each quadrilateral.

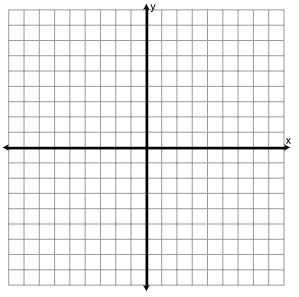
a. A(4, 8), B(0, 0), C(11, 0)



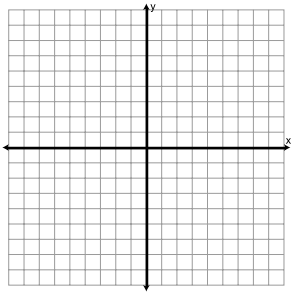
b. A(–1, 5), C(6, 1), D(6, 5)



c. A(0, 2), B(–2, 0), D(2, 0)



d. A(0, 0), B(a, 0), D(b, c)



2. Explain how you got the coordinates of the fourth vertex. What made you decide to select that point?

a. _____
b. _____
c. _____
d. _____

Knowledge:
- Cartesian Plane
- Ordered Pairs
- Properties of geometric figures

Skills:
- Plotting points on the coordinate plane
- Identifying special parallelograms
- Naming coordinates of special figures by using their properties

KU:

The coordinate plane allows precise communication about graphical representations of geometric figures.

KQ:

How do a coordinate plane communicates?

Points of Integration:
- Writing Proofs
- Placing figures in the coordinate plane

Body:

1. Introduce the lesson as given in the *Extension*.
   Note: It is generally a good practice to place a vertex at the origin and one side on the axis when working with figure in a coordinate plane. It is also important to take into consideration the concept of symmetry.
2. Discuss *Example 1* and *2*.
3. Ask students to replace the variables with numerical coefficient retaining the positions of the given figures. Show that you still have the same geometric figures by calculating the lengths or slopes.
4. Work on "Try it 1."
5. Discuss *Example 3*.
6. Use *Vocabulary and Concepts, Practice and Application I* (1, 3, and 5), *II, III* (13, 15, and 17) as Do - Now activity.

More resources on **Acquisition Strategies** are available in the **Technology Enhancement CD**

More resources on **Practice Strategies** are available in the **Technology Enhancement CD**

Conclusion:

1. Work on the worksheet given at the end of the lesson plan.
2. This is a group activity.
   a. Each group will make a cutout of a 50 square unit rectangle and trace it in different positions (at least 3) on the coordinate plane. Have it place each vertex so that the coordinates will be integers. For each position,
      (a). Give the coordinates of the vertices.
      (b). Using the coordinates in (a), calculate the lengths of the sides.
      (c). Using the lengths of the sides, calculate the area.

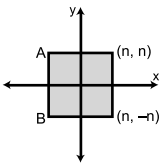
      Organize your work in a table.
   b. Replace the numerical coordinates of your rectangles in (a) with variables. Using the variables, show that you still have rectangles.

Worksheet Name: _____

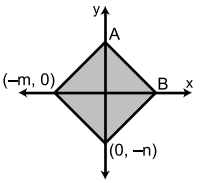
Placing Figures in
the Coordinate Plane

1. Find the missing coordinates for each figure without using any new variables.

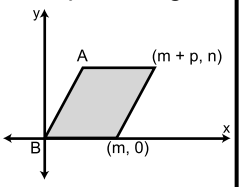
a. square



b. rhombus



c. parallelogram



2. Answer each of the following.

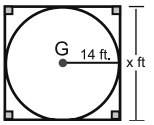
a. Use parallelogram PESO with coordinates as indicated in the figure to answer each.

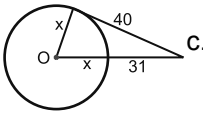
(a). Find the slope of any two consecutive sides.
(b). What kind of parallelogram is PESO?
(c). Find the coordinates of the midpoints of each side.
(d). What conclusion can you make about the segments joining the midpoints of PESO?

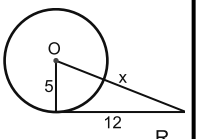
b. (a). Draw an isosceles triangle with base length 2m and height 2n.
(b). Place the base on the x-axis and one of the vertices in the origin.
(c). Find the lengths of the legs of the triangle.

a. m∠TQI
b. SI
c. RD

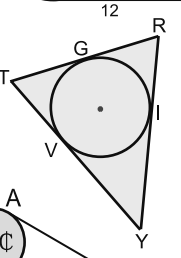
3. Use the given figures to find the value of x and y. Assume that lines that appear to be tangent are tangent.

a. 

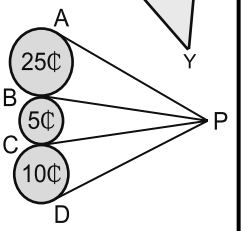
b. 

c. 

4. ΔTRY is circumscribed about circle E. If TV = 5 cm, RI = 9.2 cm, and the perimeter of ΔTRY is 59 cm, Find RT.



5. Tangents of a 25-centavo coin, a 5¢ coin and a 10¢ coin are shown. Tangents from point P are drawn to both sides of each coin. What can you conclude about the tangent segments $\overline{PA}$, $\overline{PB}$, $\overline{PC}$, and $\overline{PD}$. Explain.

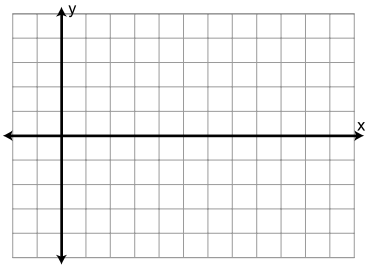


Lesson 4.4: Coordinates in Proofs (4 Days)

Introduction:

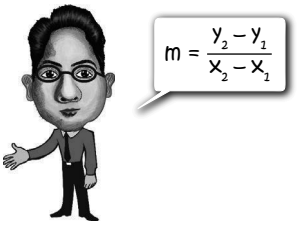
1. Refresh students memory on the following:
   a. Distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
   b. Slope formula: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$
   c. Midpoint formula: $(x, y) = \left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right)$
2. Perform the activity in the *Exploration*.

1. Graph the parallelogram with vertices A(3, 2), B(11, 2), C(9, –2), and D(1, –2).



2. Connect the midpoints of the consecutive sides to form quadrilateral PQRS with P the midpoint of $\overline{AB}$ and Q the midpoint of $\overline{BC}$.

3. Find:



   a. the slope of $\overline{PQ}$: m =
   b. the slope of $\overline{RS}$: m =
   c. the slope of $\overline{PS}$: m =
   d. the slope of $\overline{QR}$: m =
   e. What can you conclude about □PQRS? _____

4. Based from your answer in Number 3e, show that:
   a. PQ = RS
      PQ =
      RS =
   b. PS = QR
      PS =
      QR=

   c. $\overline{PR}$ and $\overline{QS}$ bisect each other.

Knowledge:
- The Distance Formula
- The Midpoint Formula
- Slope of a line
- Properties of a geometric figures

Skills:
- Calculating distance and slope
- Locating midpoint
- Using coordinates and different properties of geometric figures to write proofs.

KU:
The coordinate plane permits the use of algebraic methods to get geometric results.

KQ:
How algebra and geometry work together to get geometric results within the coordinate plane?

Points of Integration:
- Writing Proofs

Body:

1. Discuss Coordinates Proofs as presented in the book.

   Note: Things to remember when doing a coordinate geometry proof:

   1. Draw a label the graph.
   2. State the different formulas you will be using.
   3. Show your calculations.
   4. Write a concluding statement on what you have proven and why is it true.

2. Discuss the different examples in the lesson.
3. Work on "Try it 1." (Ask what a median is and the formulas they will be using.)
4. Use *Vocabulary and Concepts, Practice and Application I* (1 - 4), *II* (7 and 8), and *II*(11, 12, and 13) as Do - Now activity.

More resources on **Acquisition Strategies** are available in the **Technology Enhancement CD**

More resources on **Practice Strategies** are available in the **Technology Enhancement CD**

Conclusion:

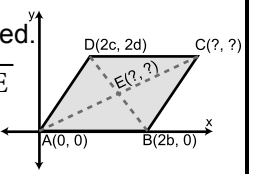
1. Work on the worksheet given at the end of the lesson plan.
2. In groups, work on the *Enrichment*. Group 1 will work on ΔABC, Group 2 on ΔEFG, Group 3 on ΔIJK, and Group 4 on ΔOPQ.

Worksheet Name: _____

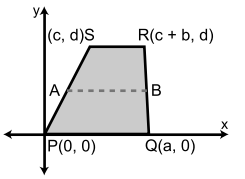
Coordinates in Proof

1. Find the slope or length as indicated.

   a. Find the length of $\overline{AE}$ and $\overline{CE}$ in parallelogram ABCD

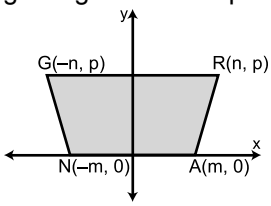


   b. Find the length of the midline $\overline{AB}$ in trapezoid PQRS

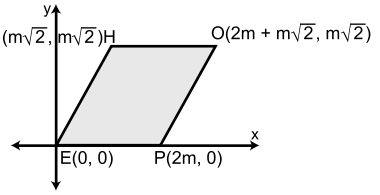


2. Write the proof of the following using coordinate proof.

   a. Prove: □GRAN is an isosceles trapezoid



   b. Prove HOPE is a rhombus



3. Place and label each figure on the coordinate plane. Then write a coordinate proof.

   a. The segments joining the midpoints of the sides of a rectangle form a rhombus.

   b. The medians to the legs of an isosceles triangle are congruent.

4. Explain why it is important that most of the vertices of a polygon are placed on the axes when making a coordinate proof.

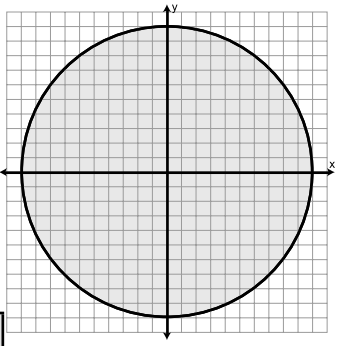
5. Write a problem on coordinate proof such that the coordinates are multiples of 2.

Lesson 4.5: Equation of a Circle (3 Days)

Introduction:

1. Recall: Completing the Square
2. Perform the activity in the *Exploration*.

The given circle has a radius of 10 units and with center at (0, 0).



1. Copy and complete the table below. (If $x^2 + y^2$ is equal to 10^2 or 100, then (x, y) lie on the circle.)

(x, y)	$x^2 + y^2$	Does (x, y) lie on the circle?
(10, 0)		
(10, 2)		
(11, –2)		
(8, 6)		
(6, 8)		
(0, 10)		
(–6, 8)		
(–8, 6)		
(–7, –8)		
(0, –10)		

2. Complete this statement: If a point (x, y) is on a circle with center at (0, 0) and with radius **r**, then $x^2 + y^2 =$ _____.

3. Compete the statement in No. 2 for a circle with radius 7.

_____

_____

Knowledge:
- Coordinate Plane
- Ordered Pairs
- Parts of a Circle
- Equation of a circle
- Graph of a circle

Skills:
- Graphing equation of a circle
- Finding the center and radius of a circle
- Writing equation of a circle

KU:
The coordinate plane permits the use of algebraic methods to get geometric results.

KQ:
How do algebra and geometry work together to get geometric results within the coordinate plane?

Points of Integration:
- Graphing circles
- Writing Proofs

Body:

Notes:

- The equation of a circle is of the form:

  Standard Form: $(x - h)^2 + (y - k)^2 = r^2$ or
  General Form: $x^2 + y^2 + Dx + Ey + F = 0$ where D, E, and F are constants

- If the equation of the circle is in the standard form you can easily identify its center (h, k) and radius, r.
- If the equation of the circle is in the general form, complete the square to transform it in general form.

More resources on **Acquisition Strategies** are available in the **Technology Enhancement CD**

1. Present the lesson as presented in the book.
   a. Ask the students to define what a circle is. Lead them to the definition given in the book. Then derive the equation of a circle of given center and radius using the Pythagorean Theorem. Students should arrived at the equation $x^2 + y^2 = r^2$.
   b. Students should be able to provide the equation for a circle with center at (h, k) and radius r.
   c. Students should identify the center and radius of the circle when given its equation or graph
   d. Have the students graph a circle when given its
      - center and radius
      - equation
2. Discuss the *Examples* in the book.
3. Work on "Try it."
4. Use *Vocabulary and Concepts, Practice and Application I* (1 - 4), as Do - Now activity.

More resources on **Practice Strategies** are available in the **Technology Enhancement CD**

Conclusion:

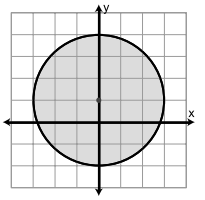
1. Work on the worksheet given at the end of the lesson plan.
2. In pairs, answer the *Writing* Exercises.

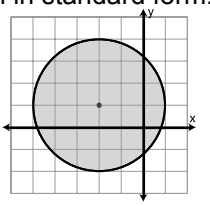
Worksheet

Name: _____

Equations
of a Circle

1. Give the radius and coordinates of the center of the circle. Then write the equation in standard form.

a. 

b. 

2. Write an equation of circle C based on the given information.

   a. $(x - 2)^2 + (y - 5)^2 = 100$

   b. $(x - 5)^2 + y^2 = 169$

   c. $(x + 2)^2 + (y - 4)^2 = 36$

   d. $(x - 3)^2 + (y + 2)^2 = 16$

3. Write an equation of circle C based on the given information.

   a. A diameter is the segment from (3m, 3n) and (3p, 3q).

   b. Center at (10, 4) and passing through (2, 2).

   c. Center at (2, 5) and tangent to the y-axis.