TEXAS MATH SOLUTION

Accelerated Grade 6

Module 3 Topic 1 Lesson 5

It's a Bird, It's a Plane...It's a Polygon on a Plane

Teacher's Implementation Guide

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5 It's a Bird, It's a Plane ... It's a Polygon on the Plane!

Graphing Geometric Figures

MATERIALS

Masking tape
Colored pencils
String
Scissors

Lesson Overview

Students apply their knowledge of plotting ordered pairs in all four quadrants to graphing and solving problems with geometric figures on the coordinate plane. Students begin with plotting and determining perimeters and area of polygons. At the end of the lesson, students engage in problem solving with coordinates in multiple quadrants to help design a playground.

Grade 6
Measurement and Data

(11) The student applies mathematical process standards to use coordinate geometry to identify locations on a plane:

(A) The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.

ELPS

1.A, 1.C, 1.D, 1.E, 1.G, 2.C, 2.D, 2.G, 2.H, 2.I, 3.A, 3.B, 3.C, 3.D, 3.F, 4.A, 4.B, 4.C, 4.D, 4.G, 4.K, 5.E

Essential Ideas

- Absolute value equations can be used to determine area and perimeter of polygons plotted on the coordinate plane.
- Polygons drawn on the coordinate plane can be used to solve real-world and mathematical problems.

Lesson Structure and Pacing: 2 Days

Day 1

Engage

Getting Started: Shape Up!

Students form quadrilaterals on the Human Coordinate Plane as other students conjecture about the shapes and prove that the conjectured shape was formed. Students review plotting ordered pairs, determining coordinates of points on the coordinate plane, determining distance on the plane, and identifying properties of quadrilaterals.

Develop

Activity 5.1: What Shape Am I?

Students plot points and connect with segments to form geometric shapes. Students determine the names of the polygons and their areas.

Activity 5.2: Completing Polygons on the Plane

Given part of a square, a triangle, a trapezoid, and a parallelogram, students use properties of the polygons and horizontal and vertical distances to complete the polygons. Students determine the areas of the polygons.

Day 2

Activity 5.3: Creating Polygons on the Plane

Students play a game in which they draw quadrant, polygon, and area cards and challenge each other to create specific polygons, with specific areas, across a specified number of quadrants.

Activity 5.4: Outfitting a Playground

Students determine the amount of sand needed for two features of a playground. They are given the coordinates of the rectangular sections of the playground and information about the depth and cost of the sand.

Demonstrate

Talk the Talk: Introduction to Coordinate Proof

Students analyze a parallelogram with given variable and numeric coordinates. They write expressions for the side lengths and area. Then, students determine values for the variables and use variable substitution to calculate the area of the parallelogram.

Getting Started: Shape Up!

Facilitation Notes

In this activity, students form quadrilaterals on the Human Coordinate Plane as other students conjecture about the shapes and prove that the conjectured shape was formed. Students review plotting ordered pairs, determining coordinates of points on the coordinate plane, determining distance on the plane, and identifying properties of quadrilaterals.

Prior to the lesson, create a grid on the floor using masking tape similar to the one from the previous lesson. Have string available to connect points. If your classroom is too small for the Human Coordinate Plane, use the board to create a coordinate plane. Use dot stickers and markers instead.

Complete Question 1 as a class. Select four students to participate in the activity. Provide the given directions for each student to position themselves at a vertex of a quadrilateral.

Differentiation strategy

To assist with seeing the shapes, students can hold string to connect the dots, forming the sides of the shapes. Select additional students to be "spotters" to relay the location information back to the rest of the class.

For Location 1, tell the students to form a rectangle that uses more than 1 quadrant. If they need more guidance, provide one person with an ordered pair (e.g., (−2, 5)). Allow the class to assist as needed. Complete the Location 1 column. For Location 2, ask the students to form a square using as few moves as possible. Complete the Location 2 column. For Location 3, ask the students to form a trapezoid using as few moves as possible. Complete the Location 3 column.

Have students complete Questions 2 through 4 in groups. Share responses as a class.

Questions to ask

- What do you know about a rectangle?
- What are the properties of a rectangle?
- What properties are shared by rectangles and squares?
- What properties are shared by squares and trapezoids?

- How could the students have chosen Location 1 and not required a move for Location 2?
- What are the minimal conditions that must be met for the students to form a rectangle? A square? A trapezoid?
- How far apart are each pair of vertically/horizontally aligned students? How do you know?

Summary

Polygons can be plotted on the coordinate plane.

DEVELOP

Activity 5.1
What Shape Am I?

Facilitation Notes

In this activity, students use the values in a table as coordinates, graph them on a plane, and connect the points to form geometric shapes. They then determine the names of the polygons and their areas.

Have students work with a partner or in groups to complete Questions 1 through 3. Share responses as a class.

Notes

- Technically, students can count to determine distances. Encourage them to use absolute value equations to determine or verify the lengths of horizontal and vertical side lengths.
- Encourage students to use their knowledge of area formulas in addition to composition and decomposition of shapes to determine areas of the shapes.

Questions to ask

- How did you decide what polygon was formed?
- What are the properties of a square?
- What are the properties of a rectangle?
- What are the properties of a parallelogram?
- What is a four-sided figure called that does not fit into any of the shapes you've mentioned?
- What information is needed to calculate the perimeter?
- How can you use absolute value equations to find distances on the coordinate plane?
- How did you determine the area? How could you verify the area you calculated?

- How is the figure formed in Question 3 similar to the figures formed in Questions 1 and 2?
- How is the figure formed in Question 3 different from the figures formed in Questions 1 and 2?
- How did you decompose the figure in Question 3? Which areas did you calculate?
- Is there another way to decompose the figure in Question 3?
- If you decomposed the figure in a different way, how is the area affected?

Summary

The areas of polygons plotted on a coordinate plane can be determined using absolute value equations, area formulas, composition of shapes and decomposition of shapes.

Activity 5.2
Completing Polygons on the Plane

Facilitation Notes

In this activity, students are given part of a square, a triangle, a trapezoid, and a parallelogram and use properties of the polygons and horizontal and vertical distances to complete the polygons, and determine their area.

Have students complete Questions 1 through 4 with a partner or in groups. Share responses as a class. Although students can technically count to determine distances, encourage them to use absolute value equations to determine or verify the lengths of horizontal and vertical side lengths.

Differentiation strategies

- Station rotation: Use each question as a station.
- Jigsaw: Assign each group a different problem and jigsaw with the other groups.
- Presentations: Assign each group a different problem and ask them to present.

General questions to ask

- How can you use absolute value equations to help you determine the area?
- How else could you have met the conditions of the problem?
- How did you find the area?
- How could you verify the area of the figure?

Questions to ask for Question 1

- What side is opposite side *AB* in Square *ABCD*?
- What side is opposite side *AB* in Square *ABEF*?
- How many locations for point *C* are possible when forming Square *ABCD*?
- How many locations for point *D* are possible when forming Square *ABCD*?
- How many locations for point *E* are possible when forming Square *ABEF*?
- How many locations for point *F* are possible when forming Square *ABEF*?
- Is *AB* a side of Square *ADCB*?
- How is Square *ABCD* different from Square *ABEF*?

Questions to ask for Question 2

- What is a parallelogram?
- What are the properties of a parallelogram?
- How can you tell the sides are parallel?
- How many locations for point *C* are possible when forming Parallelogram *ABCD*?
- How many locations for point *D* are possible when forming Parallelogram *ABCD*?
- What side is opposite side *AB* in Parallelogram *ABCD*?

Questions to ask for Question 3

- What is a right triangle?
- How would you form a right triangle on a coordinate plane?
- How many locations for point *C* are possible when forming right triangle *ABC*?
- What is an acute triangle?
- How do you know you formed an acute triangle on a coordinate plane?
- How many locations for point *D* are possible when forming triangle *ABD*?
- How do you determine the area of a triangle?
- How can you determine the length of the base of each of your triangles?
- How can you determine the length of the height of each of your triangles?

Questions to ask for Question 4

- What is a trapezoid?
- What are the properties of a trapezoid?
- Which pair of opposite sides is parallel in your trapezoid?

- Can you create a trapezoid that crosses into exactly 3 quadrants?
- How many locations for points *C* and *D* are possible when forming trapezoid *ABCD*?

Summary

The coordinate plane can be used to create polygons that meet specific conditions.

Activity 5.3
Creating Polygons on the Plane

Facilitation Notes

In this activity, students play a game in which they draw a quadrant, a polygon, and an area card and challenge each other to create specific polygons, with specific areas, across a specified number of quadrants.

Have students work with a partner or in teams to do this activity.

As students work, look for

- Combinations that are impossible.
- Combinations that are easily created by many groups.

Differentiation strategies

For students who struggle,

- Provide tangrams, pattern blocks, or other polygon manipulatives to allow them to investigate locations before drawing on paper.
- Limit the number of quadrants required to two.

Questions to ask

- How can you use absolute value equations to help you determine the area?
- What are the properties of the shape on the card you drew?
- What does it mean to have an area of ____ square units?
- What does it mean for your shape to be in 3 quadrants? Is it possible for your shape to be in exactly 3 quadrants?

Summary

The coordinate plane can be used to create polygons that meet specific conditions.

Activity 5.4
Outfitting a Playground

Facilitation Notes

In this activity, students are given the coordinates of the rectangular sections of the playground and information about the depth and cost of the sand. Using that information, they determine amount of sand needed in these areas.

Have students work with a partner or in groups to complete Questions 1 through 6. Share responses as a class.

Differentiation strategies

- The questions in this activity also review prior content that students may have forgotten. Provide students with the numeric answer for questions. The students must work the problem, but they are able to self-assess before moving to the next question.
- Provide students with a coordinate plane pre-labeled with the coordinates for the two sand pits.
- Questions 1 through 6 require the same knowledge; however, Questions 5 and 6 are less scaffolded and different information is provided. Assign Questions 1 through 4 to students who struggle and assign Questions 5 and 6 to students who need a challenge.
- Based on the given information, have students propose a location for the merry-go-round, provide coordinates for the ends of two diameters, and approximate the area taken up by the merry-go-round.

Questions to ask

- Have you plotted the ordered pairs on a coordinate plane?
- What is the shape of each sand pit?
- How do you calculate the volume of a right rectangular prism?
- How will you use the coordinates of the pit to determine the volume?
- How can you use absolute value equations to help you determine the volume?
- Would it be helpful to plot the ordered pairs?
- How do you convert from volume of sand to the number of bags of sand?

- How can you determine the amount of sand the school can afford?
- How do you convert from the number of bags of sand to the volume of sand?

Summary

Polygons on the coordinate plane can be used to solve design problems.

Talk the Talk: Introduction to Coordinate Proof

DEMONSTRATE

Facilitation Notes

In this activity, students analyze a parallelogram with given variable and numeric coordinates. They write expressions for the side lengths and area, then determine values for the variables and use variable substitution to calculate the area of the parallelogram.

Have students work with a partner or in groups to complete this activity. Share responses as a class.

Questions to ask

- What properties of parallelograms are important in this problem?
- Why is it important to know that the segment is parallel to the *x*-axis?
- How did you determine the values of *a* and *d* from the given information?
- How did you determine the length of segment *AB*?
- Is there another way to determine the length of segment *AB*?
- Do you know if points *A* and *B* are in the same or different quadrants?
- How does knowing the locations of points *A* and *B* change your expression for the length of segment *AB*?
- How did you determine the height of the parallelogram?
- How can you verify your calculation for the area of the parallelogram?
- Is there more than one answer to this question?

Differentiation strategy

Due to the abstract nature of this activity, you may have to guide students to develop the expression for the length of segment *AB* by substituting possible values for the variable *b* and then generalizing their process.

Summary

You can use what you know about the coordinate plane and parallelograms to determine unknown coordinates.

5 It's a Bird, It's a Plane ... It's a Polygon on the Plane!

Graphing Geometric Figures

WARM UP

1. Draw a rectangle that is not a square.
2. Draw a rhombus that is also a rectangle.
3. Draw a trapezoid that is not a parallelogram.

LEARNING GOALS

- Plot points in all four quadrants to form polygons.
- Draw polygons in the coordinate plane using coordinates for the vertices.
- Determine the area enclosed by a polygon on the coordinate plane.
- Use coordinates to determine the length of a side joining points with the same first or second coordinate.
- Solve real-world and mathematical problems with geometric shapes in all four quadrants on the coordinate plane.

You have determined area and perimeter of common polygons. You have decomposed complex figures into simpler shapes to determine their area. You have also determined the volume of right rectangular prisms. How can you use the coordinate plane to determine the area, perimeter, and even volume of shapes and objects?

Warm Up Answers

1. 
2. 
3. 

Answers

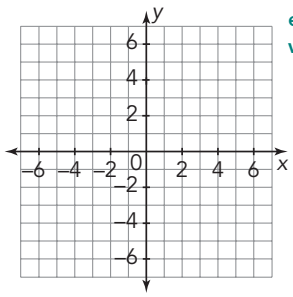
1. Answers will vary.
2. The students formed a rectangle. The grid lines form ninety degree angles. Because the students chose locations along the same vertical and horizontal grid lines, the angles between the sides are all right angles. Horizontal grid lines are parallel to each other. Vertical grid lines are parallel to each other. So opposite sides of the polygon are parallel. The opposite sides have the same length.
3. The students formed a square. The grid lines form ninety degree angles. Because the students chose locations along the same vertical and horizontal grid lines, the angles between the sides are all right angles. Horizontal grid lines are parallel to each other. Vertical grid lines are parallel to each other. So opposite sides of the polygon are parallel. All four sides are the same length.
4. The students formed a trapezoid. Horizontal grid lines are parallel to each other. Only one pair of opposite sides are parallel.

Getting Started

Shape Up!

Your teacher will select students to participate in the activity and provide them with conditions to plot on the Human Coordinate Plane.

1. For each student, plot and label the point where the student is standing on the coordinate plane. Use a different color for each location. Then record the coordinates of the point where the student is standing in the table.



Student	Location 1	Location 2	Location 3
A			
B			
C			
D			

2. What shape did your classmates form at Location 1? How can you prove that they formed the given shape?

3. Record the shape formed at Location 2. Prove that your classmates formed the shape.

4. Record the shape formed at Location 3. Prove that your classmates formed the shape.

ELL Tip

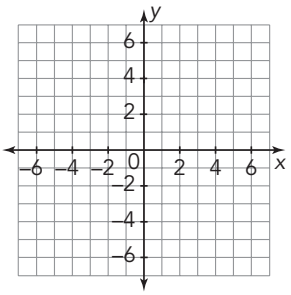
For this lesson, students will need to recognize a parallelogram, trapezoid, quadrilateral, and polygon. Review basic geometric shapes with English Language Learners by playing a Total Response Signal matching game. Draw the shapes listed on the board (adding more if you wish) and list their names. Have students respond with thumbs-up or thumbs-down as you match words to shapes. As you go along, have students practice saying the word aloud as a class.

ACTIVITY
5.1 What Shape Am I?

One advantage of the Cartesian coordinate plane is that it enables mathematicians to use coordinates to analyze geometric figures.

1. Graph the points on the coordinate plane, and connect the points to form a polygon.

x	y
1	−2
−5	−2
1	3
−5	3



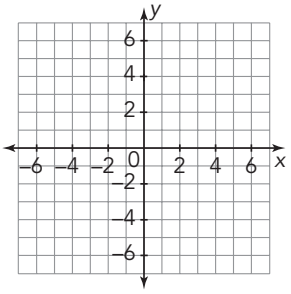
a. Identify the polygon formed and justify your answer.

b. Determine the perimeter of the polygon.

c. Determine the area of the polygon.

2. Graph the points on the plane, and connect the points to form a polygon.

x	y
−2	3
3	−2
−2	−3
3	2

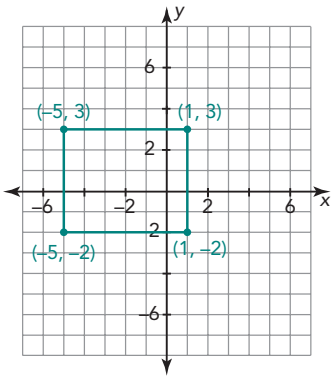


a. What polygon is formed? Justify your answer.

b. Determine the area of the polygon.

Answers

1.

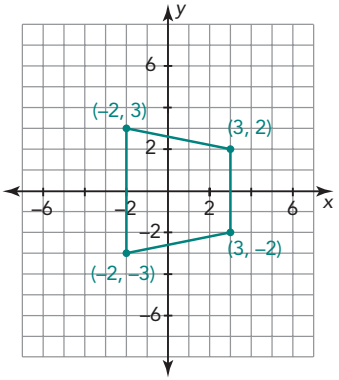


1a. This is a rectangle. It has four right angles and two sets of parallel sides.

1b. The perimeter is 22 units.

1c. The area is 30 square units.

2.

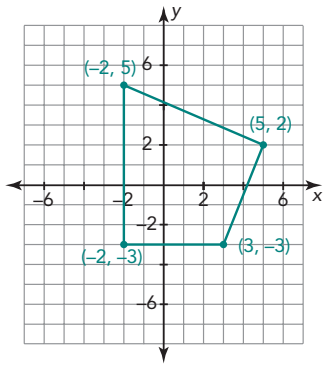


2a. This is a trapezoid. One set of opposite sides is parallel.

2b. The area is 25 square units.

Answers

3.

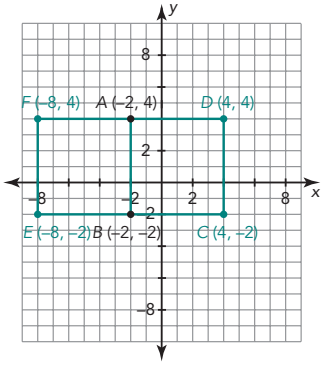


3a. This is a quadrilateral. It has 4 sides but it does not have any other special properties.

3b. The area is 40.5 square units.

Answers

1a. Sample squares.

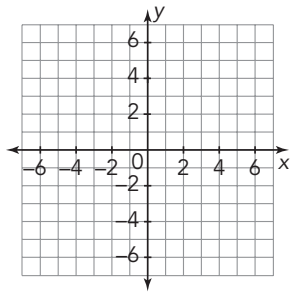


1b. Both squares have an area of 36 square units.

1c. All of the squares are the same. As long as each line segment is 6 units long, then the squares are drawn correctly.

3. Graph the points on the plane, and connect the points to form a polygon.

x	y
–2	5
3	–3
–2	–3
5	2



a. What polygon is formed? Justify your answer.

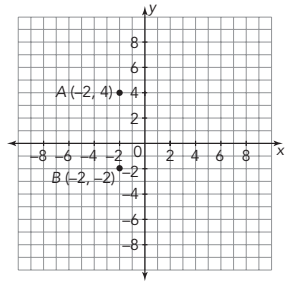
b. Determine the area of the polygon.

ACTIVITY 5.2

Completing Polygons on the Plane

Remember, a parallelogram is a quadrilateral in which both pairs of opposite sides are parallel.

1. The points *A* (–2, 4) and *B* (–2, –2) are plotted on the coordinate plane shown.

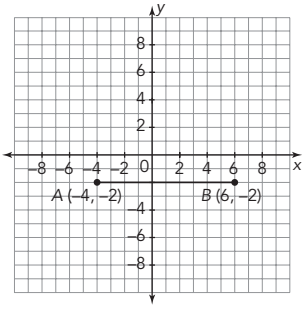


a. Plot and label points *C*, *D*, *E*, and *F* so that squares *ABCD* and *ABEF* are formed.

b. Determine the area of each square.

c. Compare your squares with your classmates' squares. Are all the squares the same or different? How do you know that the squares are drawn correctly?

2. On the coordinate plane, the line segment *AB* is graphed.

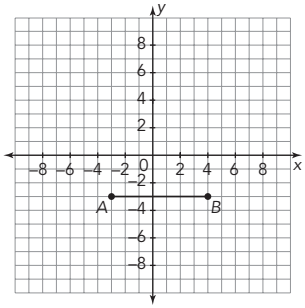


   a. Plot and label points *C* and *D* to form parallelogram *ABCD* with a height of 4 units.

   b. Determine the area of your parallelogram.

   c. Compare your parallelogram with your classmates' parallelograms. Are all the parallelograms the same or different? How do you know that the parallelograms are drawn correctly?

3. On the coordinate plane, the points *A* (−3, −3) and *B* (4, −3) are plotted to form segment *AB*.



   a. Plot and label point *C* so that a right triangle is formed.

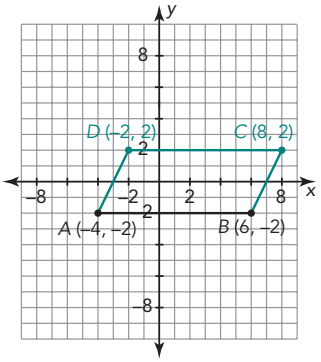
   b. Plot and label point *D* so that an acute triangle is formed.

   c. Determine the areas of your triangles.

   d. Compare your triangles with your classmates' triangles. Are all the triangles the same or different? How do you know that the triangles are drawn correctly?

Answers

2a. Sample parallelogram.

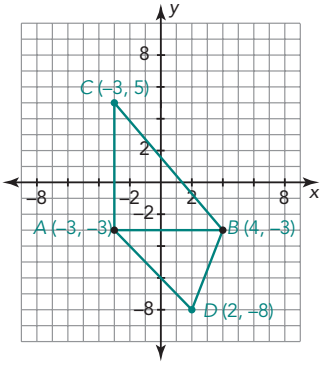


2b. The area of the parallelogram is 40 square units.

2c. The parallelograms are different. As long as one set of parallel sides each has a length of 10 units and the height of the parallelograms is 4 units, the parallelograms are drawn correctly.

3. Answers will vary.

3a., b.



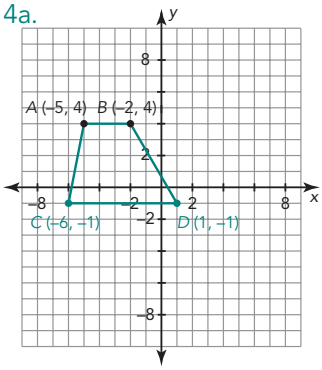
3c. The area of this right triangle is 28 square units. The area of this acute triangle is 17.5 square units.

3d. The triangles will be different. One set of triangles are right triangles, with one side on a vertical grid line and another on a horizontal grid line. The acute triangles do not have intersecting sides that form a right angle.

Answers

4. Answers will vary.

4a.



4b. The area of this trapezoid is 25 square units.

4c. The trapezoids will be different. All will have one base with a length of 3 units and a height of 5 units, but the other base length will be different. The second base must be exactly 5 units above or below segment *AB*.

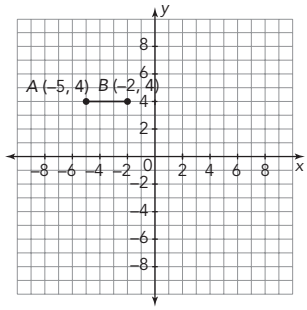
Answers

Answers will vary according to which cards are drawn.

4. On the coordinate plane, points *A* and *B* are plotted to form segment *AB*.

a. Plot and label two points to form trapezoid *ABCD* with a height of 5 units. Your trapezoid should cross into at least 3 quadrants.

b. Determine the area of your trapezoid.



c. Compare your trapezoid with your classmates' trapezoids. Are all the trapezoids the same or different? How do you know that the trapezoids are drawn correctly?

ACTIVITY 5.3

Creating Polygons on the Plane

Cut out the cards and the grid at the end of the lesson. There are three types of cards: Number of Quadrants, Polygon, Area. Keep the cards separate but shuffle each stack and place them face down.

Complete this activity with a partner. One partner should draw a card from each stack. Based on the cards, each partner must create the polygon named, across the number of quadrants on the quadrants card, with the area from the area card. The first person to correctly complete the task gets a point. Partners should check each other's work. The first partner to 5 points wins the game.

If the partner is unable to form the shape using the given conditions because it is not possible or the student cannot meet the conditions, that partner loses their turn.

Record your polygons on the grid paper provided.

ACTIVITY
5.4 Outfitting a Playground

You have been asked to advise on the design of a playground for your local elementary school. The playground is laid out in a grid with a unit of 1 foot and a merry-go-round at the center of the playground. Your project is to determine the amount of sand needed for the fossil dig sandbox and the sand pit under the swing set.

The coordinates for the fossil pit are (−18, −7), (−10, −7), (−18, −13), and (−10, −13).

1. **Determine the volume of the fossil pit if the pit is 0.75 feet deep.**

2. **If the school will fill the pit halfway up with sand, determine the volume of sand that is required.**

3. **Each 50-pound bag of sand holds about 0.5 cubic feet of sand. Determine the number of bags of sand needed for the fossil pit.**

4. **Each bag of sand costs $3.80. How much will the sand cost for the fossil pit?**

The coordinates for the swing set sand pit are (15, 2), (40, 2), (15, −8), and (40, −8).

5. **Determine the volume of the swing set sand pit if the pit is 0.5 feet deep.**

6. **If the school has $250 to spend on sand for the swing set sand pit, how much of it can be filled with sand?**

Answers

1. The volume is 36 cubic feet.
2. The volume of the sand is 18 cubic feet.
3. The school needs 36 bags of sand.
4. The sand will cost $136.80.
5. The volume of the swing set sand pit is 125 cubic feet.
6. The swing set pit can be approximately one-quarter full of sand.

Answers

1a. $a = 3$ and $d = 1$. We cannot determine the value of b and c.

1b. The length of segment AB is $|-2| + |b|$ if A and B are in different quadrants. The length of the segment is $|-2| - |b|$ if A and B are in the same quadrant.

1c. The vertical height of the parallelogram is 2 units.

1d. The area of the parallelogram is the product of the length of its base and the length of its height. Sample answer. $A = (|-2| + |b|) \times 2$, or $4 + 2|b|$ if a and b are in different quadrants.

$A = (|-2| - |b|) \times 2$, or $4 - 2|b|$ if a and b are in the same quadrant.

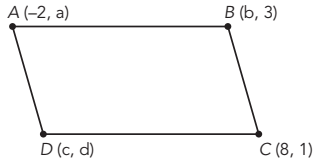
1e. $a = 3$, $b = 5$, $c = 1$, and $d = 1$. The area is 14 square units.

NOTES

TALK the TALK

Introduction to Coordinate Proof

1. The coordinates of a parallelogram are given. Segment *AB* is parallel to the *x*-axis.



a. Determine the values for *a*, *b*, *c*, and *d*, if possible.

b. Write an expression for the length of segment *AB*.

c. Determine the vertical height of the parallelogram.

d. Write an expression for the area of the parallelogram.

e. If $b = 5$, determine the values for *a*, *c*, and *d*. Then calculate the area of the parallelogram.

Number of Quadrants, Polygon Names, and Area Measurements

1 Quadrant	2 Quadrants	3 Quadrants	4 Quadrants
Square	Rectangle	Triangle	Trapezoid
Any Parallelogram	Any Quadrilateral	Any Polygon	Rhombus
18 square units	16 square units	20 square units	24 square units
30 square units	36 square units	15 square units	50 square units

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So you can cut out the content on the other side.

Assignment

LESSON 5: It's a Bird, It's a Plane ... It's a Polygon on the Plane!

Write

Explain how to use the coordinate plane and absolute value to determine perimeter and area of geometric shapes.

Remember

One advantage of the Cartesian coordinate plane is that it enables mathematicians to use coordinates to analyze geometric figures. The distance between two points on a coordinate plane can be calculated by using the coordinates of the two points.

Practice

1. Create and analyze a trapezoid.
   a. Plot and label four points on a coordinate plane that satisfy all the conditions listed:
      - Each point is in a different quadrant.
      - The four points form a trapezoid with only one pair of parallel sides.
      - The trapezoid has a height of 9 units.
      - One base of the trapezoid has a length of 6 units.
      - The second base of the trapezoid has a length of 3 units.
      - None of the points are located on an axis.
      - The trapezoid is not symmetric to either axis.

   b. Determine the area of the trapezoid.
   c. Is it possible to create a trapezoid that satisfies the conditions but has a different area? Explain.

2. Plot and identify four points across at least 2 quadrants that form a parallelogram that is not a rectangle. Determine the area of the parallelogram.

3. Plot and identify four points across at least 3 quadrants that form a non-square rectangle. Determine the area of the rectangle.

Assignment Answers

Write

Answers will vary.

Practice

Sample answers.

1a. (−3, 8), (3, 8), (−2, −1), (1, −1)

1b. Area = 40.5 square units

1c. No. Because the base lengths and trapezoid height were given, the area will always be the same.

2. Answers will vary.

3. Answers will vary.

Assignment Answers

Stretch

1. $48 + \left(\frac{1}{2}\right) 32 - 1 = 63$ square units
2. I can use where the grid lines meet as the "points." The interior points are the intersections of grid lines inside the square. The boundary points are the grid line intersections on the segments that comprise the square. Area = 81 square units.
3. Answers will vary.

Review

1a. −18

1b. 36

1c. −38

1d. 107

2. 1672.272 cubic centimeters
3. 7.8 cm

Stretch

Pick's Theorem says that the area of a polygon that has its vertices on a lattice—a field of evenly spaced points—can be calculated as follows:

- Count the number of interior points.
- Add this to half the number of boundary points (circled).
- Subtract 1.

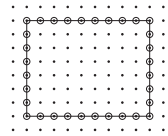
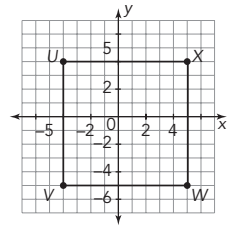


Figure A

1. Determine the area of Figure A using Pick's Theorem.
2. The coordinate plane can be like a lattice of points. How can you use this fact to determine the area of the given square?
3. Demonstrate Pick's Theorem on the coordinate plane using other polygons drawn in all four quadrants.

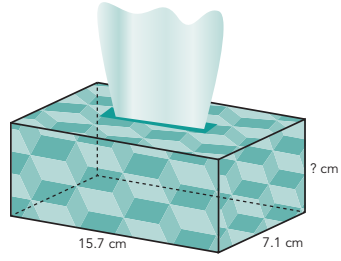


Review

1. Calculate the distance of each number from 125. Use positive numbers to indicate the distance when the number is greater than 125 and negative numbers to indicate the distance when the number is less than 125.
   a. 107
   b. 161
   c. 87
   d. 232

2. Determine the volume of the right rectangular prism.

3. Given the volume, determine the unknown measure.
   Volume = 869.466 cubic centimeters



2 • TOPIC 1: Signed Numbers and the Four Quadrants