EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 1 through 6, students use number lines to explore and develop the concept of a **coordinate plane**, focusing only on the **first quadrant**.

You can expect to see homework that asks your child to do the following:

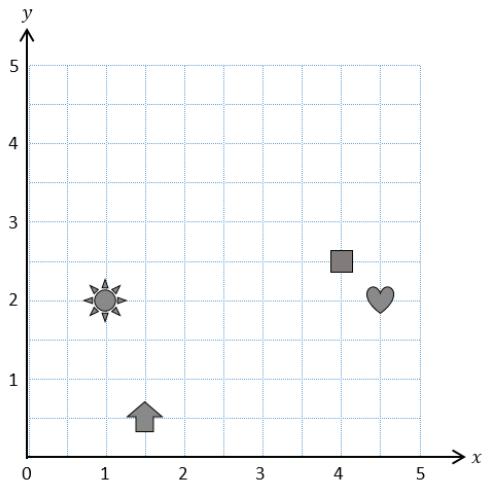
- Plot and label shapes and points on number lines.
- Identify the locations of shapes and plot shapes on coordinate planes.
- Construct x- and y-**axes** and label numbers along both axes to create coordinate planes.
- Plot and label **coordinate pairs** and points on coordinate planes.
- Construct and identify **perpendicular lines** and **parallel lines** to both axes of a coordinate plane.

SAMPLE PROBLEM *(From Lesson 2)*

Use the coordinate plane to answer the following.

a. Name the shape at each location.

x-coordinate	y-coordinate	Shape
1	2	*sun*
4	$2\frac{1}{2}$	*square*
$4\frac{1}{2}$	2	*heart*
$1\frac{1}{2}$	$\frac{1}{2}$	*arrow*



b. Which two shapes have the same y-coordinate?

sun and heart

c. What shape is $2\frac{1}{2}$ units from the x-axis?

square

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

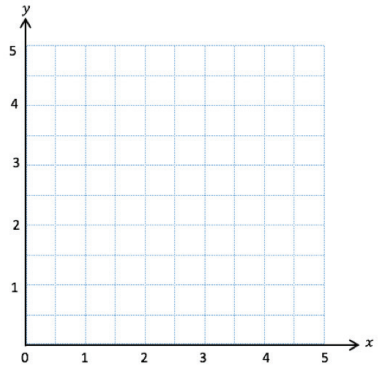
- Play the game Battleship with your child. The directions, rules, and template are in the Lesson 4 Problem Set.
- Practice plotting coordinate pairs with your child. You say the coordinate pairs, and your child plots them on a coordinate plane. You may use the coordinate plane template from either Lesson 2 or Lesson 6.

TERMS

Axis: A fixed reference line for the measurement of coordinates.
Coordinate pair: Two numbers that identify a point on a plane. Coordinate pairs are written (x, y), where x represents a distance from 0 on the horizontal x-axis and y represents a distance from 0 on the vertical y-axis. For example, (3, 10) is a coordinate pair.
Parallel lines: Two lines in a plane that do not intersect. Parallel lines can be denoted as $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$.
Perpendicular lines: Formed by two lines, line segments, or rays intersecting to form a 90 degree angle and denoted by the symbol $\perp$. For example, $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$ represents the perpendicular lines AB and CD.
***x*-coordinate:** The horizontal value in a coordinate pair. The x-coordinate is always written first in an ordered pair of coordinates (x, y). For example, in (9, 2), the value 9 is the x-coordinate.
***y*-coordinate:** The vertical value in a coordinate pair. The y-coordinate is always written second in an ordered pair of coordinates (x, y). For example, in (9, 2), the value 2 is the y-coordinate.

MODELS

First Quadrant of the Coordinate Plane



EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 7 through 12, students continue to learn about the coordinate plane by investigating patterns.

You can expect to see homework that asks your child to do the following:

- Use given rules to generate coordinate pairs, plot points, and investigate relationships.
- Construct lines and analyze the relationships between them.
- Generate number patterns from given rules, plot the points, and analyze the relationships within the sequences of the **ordered pairs**.
- Create rules to generate number patterns and plot the points.

SAMPLE PROBLEM *(From Lesson 9)*

Complete the table for the given rule. Then, construct lines a and b on the coordinate plane.

a. Construct each line on the coordinate plane.

Line a

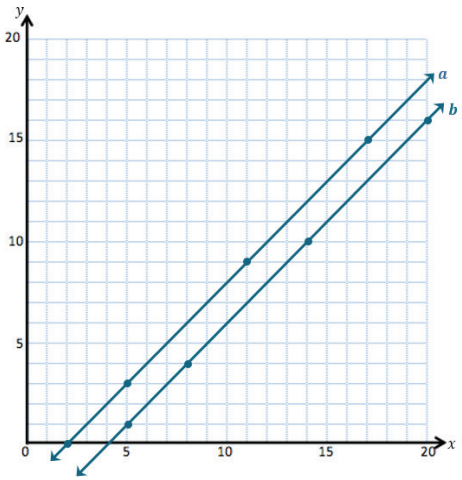
Rule: y is 2 less than x.

x	y	(x, y)
2	0	(2, 0)
5	3	(5, 3)
11	9	(11, 9)
17	15	(17, 15)

Line b

Rule: y is 4 less than x.

x	y	(x, y)
5	1	(5, 1)
8	4	(8, 4)
14	10	(14, 10)
20	16	(20, 16)



b. Compare and contrast these lines.

The lines are parallel. Neither line passes through the origin. Line b has y-values 2 units less than in line a.

c. Based on the patterns you see, predict what line c, whose rule is y is 6 less than x, would look like.

Since the rule for line c is also a subtraction rule, I think line c will also be parallel to lines a and b. Line c will have y-values 2 units less than in line b and 4 units less than in line a.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Practice naming coordinate pairs with your child. Plot a set of points on the coordinate plane and have your child name the coordinate pair for each point. To make it more interesting and fun, try to plot a set of points so that when all points are connected they form either a shape or an animal. You may use the coordinate grid template from Lesson 8.
- Ask your child to explain how she determines where to plot an ordered pair on the coordinate plane. What does the first number in the ordered pair mean? What does the second number in the ordered pair mean? (Answers: The first number in the ordered pair is the x-coordinate. This number represents the distance from 0 on the x-axis. The second number in the ordered pair is the y-coordinate. This number represents the distance from 0 on the y-axis.)

TERMS

Ordered pair: Two quantities written in a given fixed order, usually written as (x, y).

Origin: A fixed point from which coordinates are measured; the point at which the x-axis and y-axis intersect, labeled (0, 0) on the coordinate plane.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

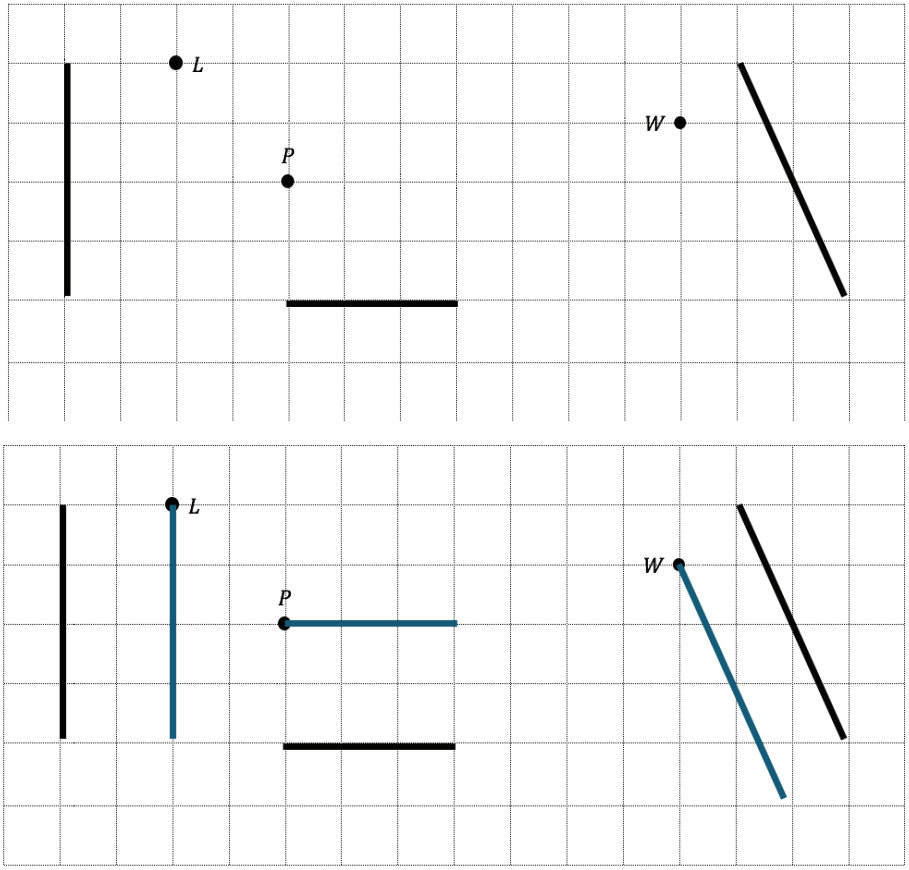
In Lessons 13 through 17, students draw figures in the coordinate plane.

You can expect to see homework that asks your child to do the following:

- Construct parallel and perpendicular lines, and analyze the relationships among lines, points, and coordinate pairs.
- Draw symmetric figures, using both distance and angle size from a given line of symmetry.

SAMPLE PROBLEM *(From Lesson 13)*

Use your straightedge to draw a segment parallel to each segment through the given point.



Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Have your child explain the difference between parallel lines and perpendicular lines. If necessary, use your hands or fingers to represent these lines. For example, place your two index fingers side-by-side to show they are parallel. Cross two index fingers to show they are perpendicular.
- Play a scavenger hunt game with your child. Go around your home looking for parallel and perpendicular line segments. Set a timer for one minute and see who finds the most pairs of parallel and perpendicular line segments in the allotted time.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

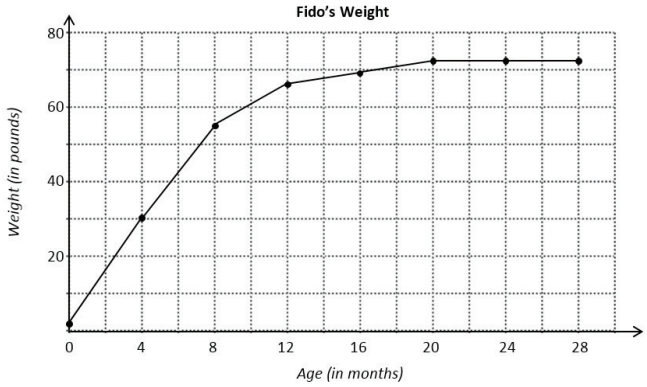
In Lessons 18 through 20, students focus on applications of the coordinate plane in the real world.

You can expect to see homework that asks your child to do the following:

- Draw symmetric figures on the coordinate plane.
- Analyze **line graphs** and explore patterns in the coordinate plane.

SAMPLE PROBLEM *(From Lesson 19)*

The line graph below shows the weight of a German shepherd, Fido, over a period of 28 months. Use the information in the graph to answer the questions that follow.



a. About how much did Fido weigh at 8 months of age?

Fido weighed about 55 pounds.

b. How much weight did Fido gain between 4 months and 8 months of age? Explain how you know.

I can find the difference between Fido's weights at those ages. I subtracted 30 pounds from 55 pounds. So he gained 25 pounds between 4 and 8 months of age.

c. Explain what happened to Fido's weight and to the line on the graph between month 20 and month 28.

The line became horizontal to show that his weight did not change during that time. So Fido's weight stayed the same.

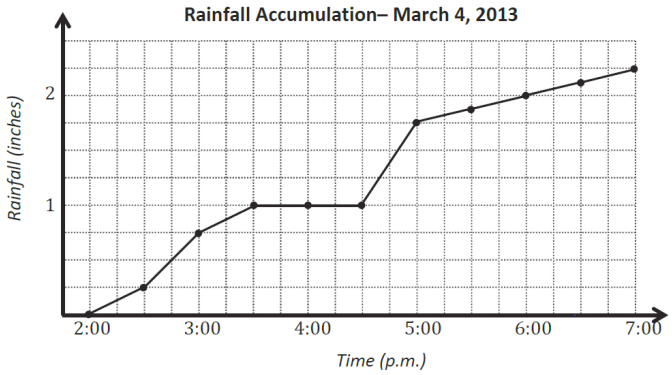
Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Practice analyzing a line graph with your child. Ask her to pick one of the line graphs from her previous work, and analyze it together. You can help by asking guiding questions such as, "What is this line graph about?" "What information does the *x*-axis show?" "What is the unit?" "What information does the *y*-axis show and in what unit?" "What did you learn from looking at this graph?"

MODELS

Line Graph



EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

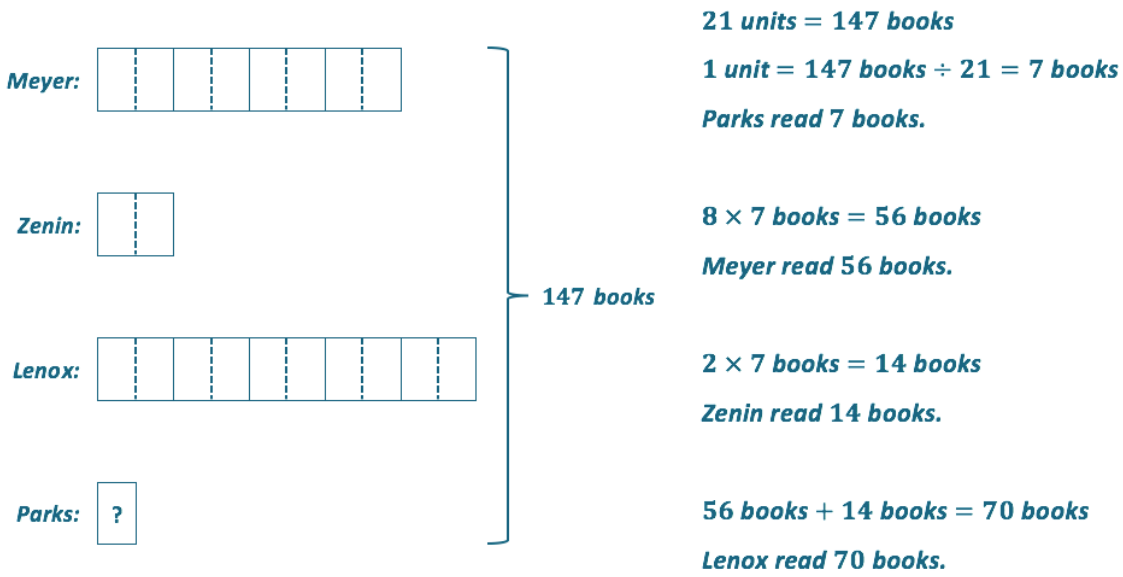
In Lessons 21 through 25, students solve complex, multi-step problems requiring the application of concepts and skills they have mastered throughout the Grade 5 curriculum.

You can expect to see homework that asks your child to do the following:

- Use all four operations (addition, subtraction, multiplication, and division) with both whole numbers and fractions to solve problems in various contexts.

SAMPLE PROBLEM *(From Lesson 21)*

Meyer read 4 times as many books as Zenin. Lenox read as many books as Meyer and Zenin combined. Parks read half as many books as Zenin. In total, the students read 147 books. How many books did each child read?



Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Remind your child to use the RDW (Read, Draw, Write) process to solve problems. Have him select a few word problems from his homework and ask him to show you the steps of the RDW process as he solves each problem. First, he should carefully read through the problem. Then, he should draw a model to make sense of the problem, or he may prefer to act out what is happening in the story to help him understand the word problem. Finally, he should write an equation and a statement to put the answer back into the context of the problem.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 26 through 34, students solidify the year's learning by creating and playing games and by exploring patterns such as the **Fibonacci sequence**. They also design and construct boxes to house materials for summer use.

You can expect to see homework that asks your child to do the following:

- Write and interpret numerical **expressions**.
- Create and solve multi-step word problems.
- Name and classify **quadrilaterals** based on their properties.
- Teach someone at home to play a game that was taught in math class.
- Find various rectangular boxes at home and then calculate their **volumes**.
- Write reflections on the material learned throughout the year.

SAMPLE PROBLEM *(From Lesson 26)*

Write a numerical expression for the written phrase below, and then evaluate your expression.

Three-fifths the difference of seven-eighths and five-sixths

$$\frac{3}{5}\times\left(\frac{7}{8}-\frac{5}{6}\right)$$

$$=\frac{3}{5}\times\left(\frac{21}{24}-\frac{20}{24}\right)$$

$$=\frac{3}{5}\times\frac{1}{24}$$

$$=\frac{3}{120}$$

$$=\frac{1}{40}$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Your child will soon bring home summer math boxes containing games and activities collected from Lessons 26 through 30. Each game and activity was carefully designed to help your child practice math throughout the summer. Set aside some math time each day. Play the math games and complete the math activities with your child. Challenge your child to math contests. Celebrate what she knows and what she has learned this year. Congratulate her on her hard work and perseverance.
- Continue to practice multi-digit addition, subtraction, multiplication, and division with whole numbers, fractions, and decimals to help prepare your child for the next school year.

TERMS

Expression: A mathematical phrase involving a combination of sums, differences, products, or divisions of numbers. Expressions are not complete mathematical sentences like equations, so they do not have an equal sign. For example, $600 + 3 + 0.07$ is an expression.

Fibonacci sequence: An infinite sequence of whole numbers in which the first two terms are 1 and 1, and each term after is the sum of the two terms immediately before (i.e., 1, 1, 2, 3, 5, 8, 13, 21, ...).

Quadrilateral: A closed figure with four sides. For example, trapezoids, parallelograms, rectangles, rhombuses, kites, and squares are all quadrilaterals.

Volume of a solid: The amount of space inside a three-dimensional solid. For example, in rectangular prisms, Volume = length × width × height.