

## Math Journal - Chapter 12 - Functions and Coordinate Geometry

- 12.01 Explain how to write an equation for data in a table. (use any table from text page 600-601 or create your own)
- 12.02 Discuss why using three (or more) ordered pairs from a function table to graph a line is the preferred method for graphing functions. (Make sure to point out that only 2 points are needed to construct a line)
- 12.03 Explain how to find the new coordinates of a point that is translated 3 units right and 2 units down.
- 12.04 Explain how the coordinates of a figure change when the figure is reflected across the  $y$  axis.
- 12.05 Tell how the  $x$ - and  $y$ -coordinates change when a figure is rotated counterclockwise  $90^\circ$  about the origin.
- 12.06 Which dimensions of a figure can be changed so that the new figure is similar to the original?

### General Scoring Rubric:

- 0 No Response
- 1 Wrong response
- 2 Weak response
- 3 Showed understanding
- 4 Showed understanding and cited an example
- 5 Showed understanding, cited examples and communicated effectively enough to enable others to understand.

# **Math Objectives**

**5.02; 5.03; 5.04**

Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### Tables and Functions

Essential Question: Can you develop an action plan to follow when you want to write an equation for data in a table?

Objective (s) Numbers: **5.02; 5.03; 5.04**  
Outcomes: Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.

Materials: Textbook pages 598-601; 1.7 Practice B; 12.1 Practice B; 12.1 PS  
Anticipatory Set: Today we will use data in a table to write an equation for a function and use the equation to find a missing value.

### During the Lesson

Presentation of Information:  
Integration of Other Subjects: Writing (How To, Sequence)  
Reading (vocabulary, problem solving, analyzing expectation)  
Integration of Reading: Reading for information and interpretation.  
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Discuss vocabulary: function, input, output, tables. Review "Finding a Pattern".

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Discuss, review and model - Finding a pattern (1.7 Practice B)  
Practice writing equations for various function tables. {Use 12.1 Practice B}  
Model Problem Solving Applications as related to Function Tables  
{Use 12.1 Problem Solving}

### After the Lesson

Independent Practice Text page 600-601 {1–13, 15, 20–24 }  
**AIG:** {5–17, 19–24}  
Assign workbook page 12.1

Closure / Assessment: Explain how to write an equation for data in a table. (use any table from text page 600-601 or create your own)

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

## LESSON

**1-7** **Practice B**  
*Find a Pattern*

Identify a pattern in each sequence, and name the next three terms.

1. 4, 8, 16, 32,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

2. 100, 95, 90, 85,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

3. 8, 20, 32, 44,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

4. 6, 12, 18, 24,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

5. 9, 18, 27, 36,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

6. 3, 6, 12, 24,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

7. 5, 10, 20, 40,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

8. 100, 125, 150, 175,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

9. 20, 18, 16, 14, 12,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

10. 4, 8, 12, 16, 20,  $\square$ ,  $\square$ ,  $\square$ , ...  
\_\_\_\_\_

Identify a pattern in each sequence, and name the missing terms.

11. 300, 250,  $\square$ ,  $\square$ , 100,  $\square$ , 0, ...  
\_\_\_\_\_

12. 1, 15,  $\square$ , 43, 57,  $\square$ , 85, 99, ...  
\_\_\_\_\_

13. 7,  $\square$ , 21, 28,  $\square$ ,  $\square$ ,  $\square$ , 56, ...  
\_\_\_\_\_

14. 9,  $\square$ , 13,  $\square$ ,  $\square$ ,  $\square$ , 21, 23, ...  
\_\_\_\_\_

15.  $\square$ , 17, 15,  $\square$ , 11,  $\square$ , 7,  $\square$ , 3, ...  
\_\_\_\_\_

16. 100, 85,  $\square$ , 55,  $\square$ , 25, 10, ...  
\_\_\_\_\_

17. A forest ranger in Australia took measurements of a eucalyptus tree for the past 3 weeks. The tree was 12 inches tall the first week, 19 inches the second week, and 26 inches the third week. If this growth pattern continues, how tall will the tree be next week?
- \_\_\_\_\_

18. Maria puts the same amount of money in her savings account each month. She had \$450 in the account in April, \$600 in May, and \$750 in June. If she continues her savings pattern, how much money will she have in the account in July?
- \_\_\_\_\_

**LESSON**  
**12-1 Practice B**  
**Tables and Functions**

Write an equation for a function that gives the values in each table. Use the equation to find the value of  $y$  for the indicated value of  $x$ .

1. 

$x$	1	2	3	4	5
$y$	7	14	21	28	◆

 \_\_\_\_\_  
\_\_\_\_\_

2. 

$x$	2	3	4	5	6
$y$	-3	-2	-1	0	◆

 \_\_\_\_\_  
\_\_\_\_\_

3. 

$x$	20	16	12	8	4
$y$	10	8	6	4	◆

 \_\_\_\_\_  
\_\_\_\_\_

4. 

$x$	7	8	9	10	11
$y$	11	12	13	14	◆

 \_\_\_\_\_  
\_\_\_\_\_

Write an equation for the function. Tell what each variable you use represents.

5. Amanda is 7 years younger than her cousin.

\_\_\_\_\_

6. The population of North Carolina is twice as large as the population of South Carolina.

\_\_\_\_\_

\_\_\_\_\_

7. An Internet book company charges \$7 for each paperback book, plus \$2.75 for shipping and handling per order.

\_\_\_\_\_

\_\_\_\_\_

8. Henry records how many days he rides his bike and how far he rides each week. He rides the same distance each time. He rode 18 miles in 3 days, 24 miles in 4 days, and 42 miles in 7 days. Write an equation for the function.

\_\_\_\_\_

**LESSON****12-1****Problem Solving****Tables and Functions**

Use the tables to answer each question.

**Table 1**

miles	kilometers
2	3.22
3	4.83
4	
5	8.05

**Table 2**

ounces	grams
1	28.35
2	
3	85.05
4	113.4

**Table 3**

gallons	liters
5	
10	37.9
15	56.85
20	75.8

1. Write an equation for a function that gives the values in table 1. Define the variables you use. Use your equation to find the missing term in the table.  
  
\_\_\_\_\_  
  
\_\_\_\_\_
2. Write an equation for a function that gives the values in table 2. Define the variables you use. Use your equation to find the missing term in the table.  
  
\_\_\_\_\_  
  
\_\_\_\_\_
3. Write an equation for a function that gives the values in table 3. Define the variables you use. Use your equation to find the missing term in the table.  
  
\_\_\_\_\_  
  
\_\_\_\_\_
4. There are 4 quarts in a gallon. Write an equation for a function relating quarts to liters. Then use your equation to find how many liters of oil a 50-quart barrel can hold.  
  
\_\_\_\_\_  
  
\_\_\_\_\_

**Circle the letter of the correct answer.**

5. The Rocky Mountains stretch 3,750 miles across North America. What is this length in kilometers?  
**A** 2,329.2 kilometers  
**B** 1,164.6 kilometers  
**C** 6,037.5 kilometers  
**D** 12,075 kilometers
6. A hummingbird egg only weighs 0.25 grams! How many ounces does the egg weigh?  
**F** about 7.0875 ounces  
**G** about 0.009 ounces  
**H** about 28 ounces  
**J** about 9 ounces

# **Math Objectives**

**5.02; 5.03; 5.04**

Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

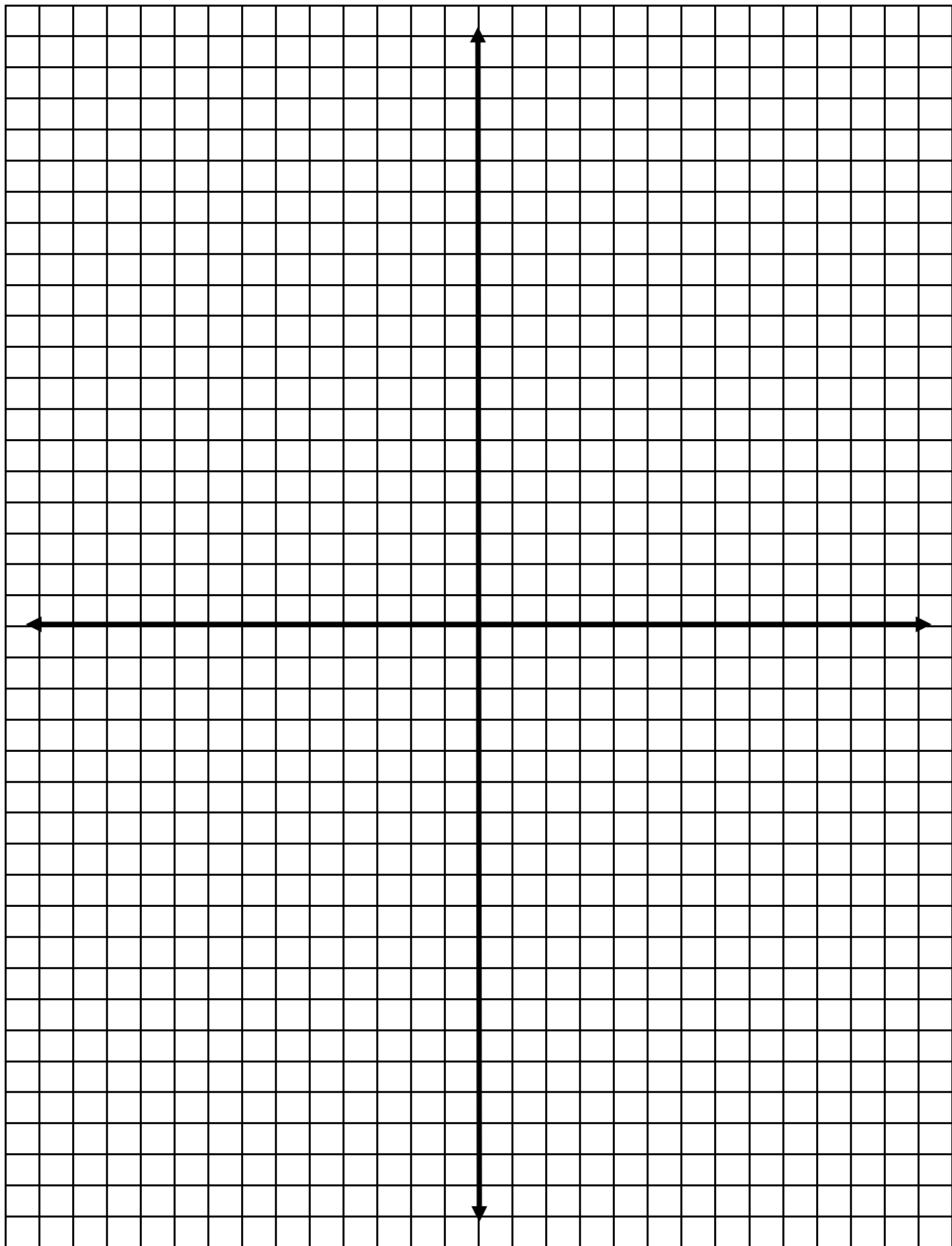
### Graphing Functions

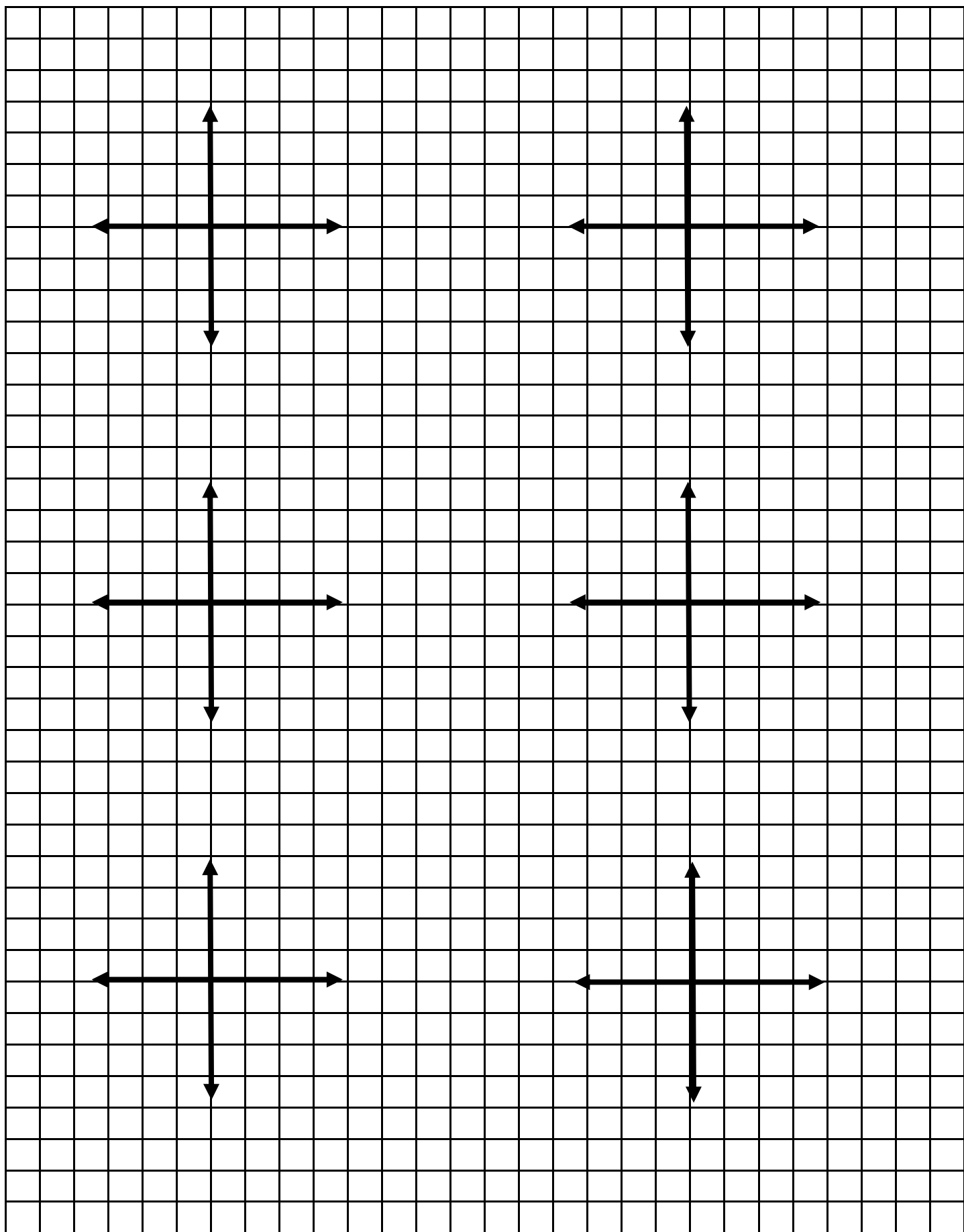
Essential Question:	You have had an opportunity to graph lines using 3 points and using 2 points. Which do you prefer and why?
Objective (s) Numbers:	<b>5.02; 5.03; 5.04</b>
Outcomes:	Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.
Materials:	Textbook pages 604-607; Coordinate Planes (large and small)
Anticipatory Set:	Today we will learn to represent linear functions using ordered pairs and graphs.
Presentation of Information:	
Integration of Other Subjects:	Writing (evaluation) Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Model finding the solution of an equation with 2 variables, checking the solution and graphing the linear function. $\{y = 2x + 1\}$
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Complete the Guided Practice and 1-8 on page 606.

### After the Lesson

Independent Practice	Text page 606-607 {9-18, 33-37} <b>AIG:</b> {17-25, 33-37} Assign workbook page 12.2
Closure / Assessment:	Discuss why using three (or more) ordered pairs from a function table to graph a line is the preferred method for graphing functions. (Make sure to point out that only 2 points are needed to construct a line)
Reflection:	
Integration with School-wide Focus:	Improve mathematics computation and problem solving.







# **Math Objectives**

**3.03; 3.04**

Transform figures in the coordinate plane and describe the transformation; Solve problems involving geometric figures in the coordinate plane.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### Graphing Translations

**Essential Question:** Over the next four lessons you will learn how to transform figures on the coordinate plane. This is a fairly complicated process and the state will measure your aptitude using questions related to these skills. Students who master these skills will usually score level 4, while those who don't quite get it will score level 3. Either develop an action plan to make sure you score a 4 or choose on an alternate skill that you think the state should use as the benchmark and explain your thinking.

**Objective (s) Numbers:** **3.03; 3.04**  
**Outcomes:** Transform figures in the coordinate plane and describe the transformation; Solve problems involving geometric figures in the coordinate plane.

**Materials:** Textbook pages 610-612; Coordinate Planes (large and small)  
**Anticipatory Set:** Today we learn to use translations to change the positions of figures on a coordinate plane.

### During the Lesson

**Presentation of Information:**  
**Integration of Other Subjects:** Writing (How To)  
Reading (vocabulary, problem solving, analyzing expectation)  
**Integration of Reading:** Reading for information and interpretation.  
**Integration of Technology:** Computer, Projector, PowerPoint, Internet

**Modeling:** Use lesson 7.10 from Math6.org to review transformations. (40 minutes) Ask the students to explain how they know the figure on page 610 is a translation rather than a reflection across the origin.

**Differentiation:** 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

**Guided Practice:** Model translating a figure on a Coordinate Plane.  $\{(+6, -5), (-4, +3)\}$   
Use guided practice problems 1-5 on page 611-612 to continue instruction.

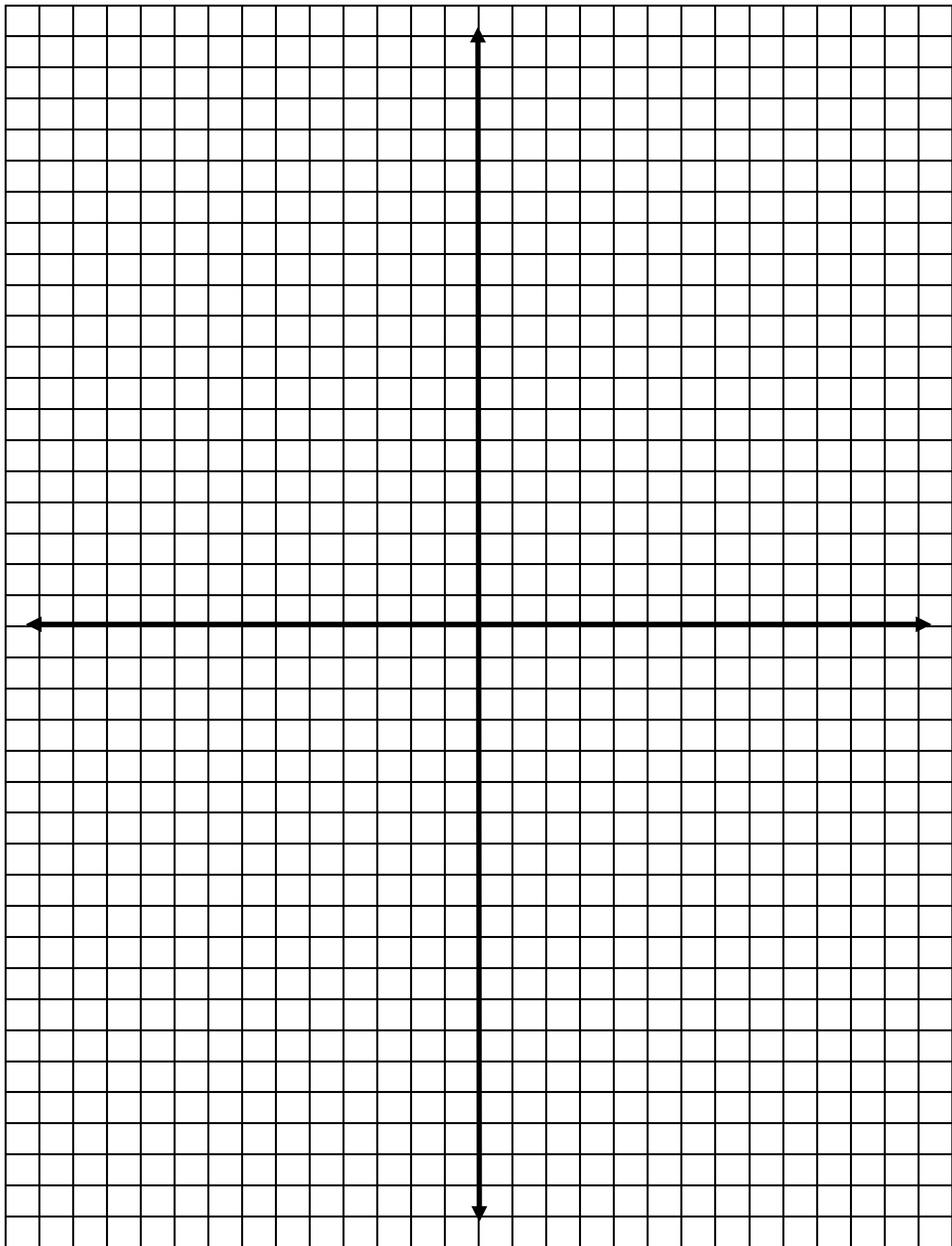
### After the Lesson

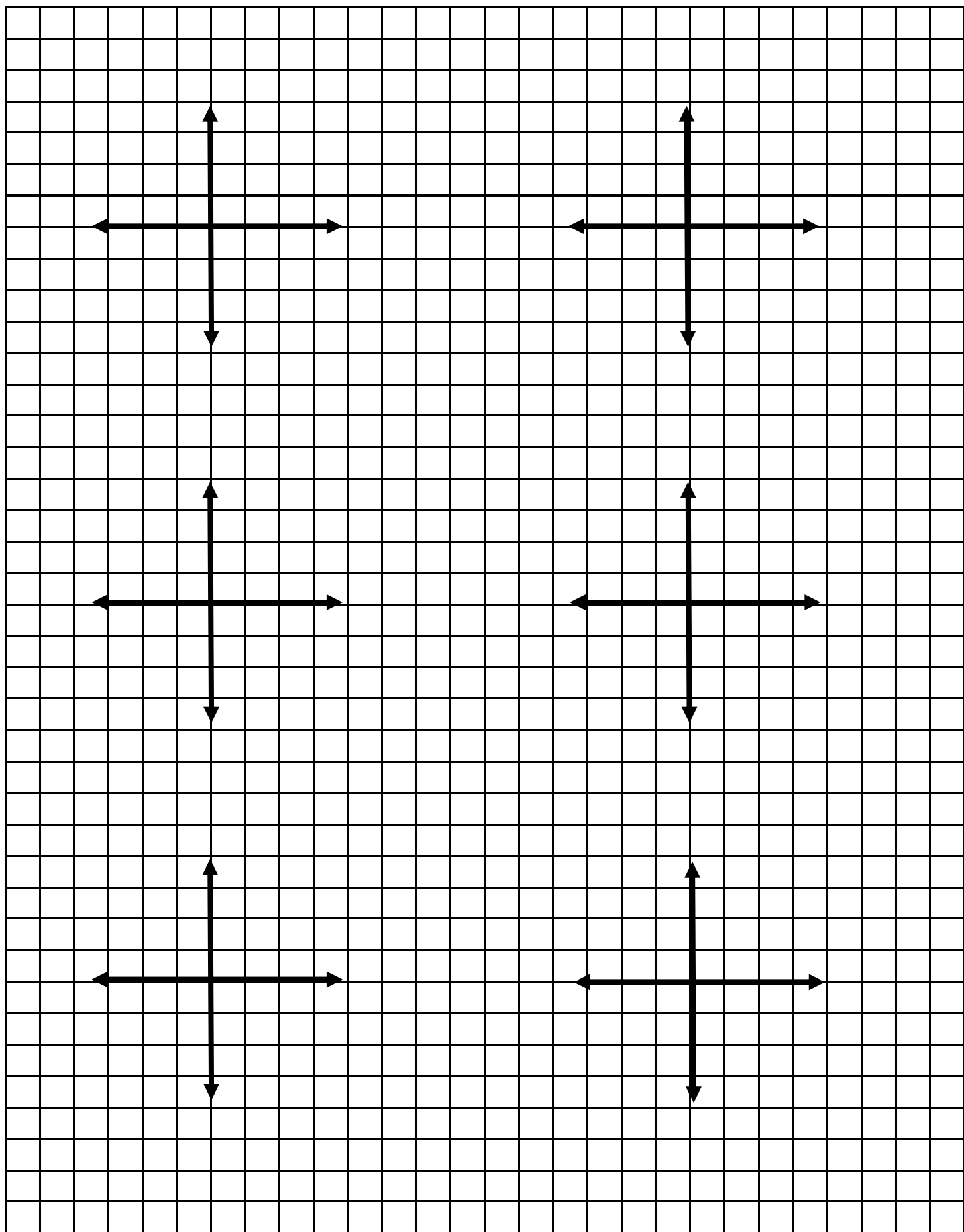
**Independent Practice** Text page 612 {6-8, 11-14}  
**AIG:** {6-8, 11-14}  
Assign workbook page 12.3

**Closure / Assessment:** Explain how to find the new coordinates of a point that is translated 3 units right and 2 units down.

**Reflection:**

**Integration with School-wide Focus:** Improve mathematics computation and problem solving.





# **Math Objectives**

## **4.01**

The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### Graphing Reflections

Essential Question:	Transforming figures on the coordinate plane is a fairly complicated process and the state will measure your aptitude using questions related to these skills. Students who master these skills will usually score level 4, while those who don't quite get it will score level 3. Either develop an action plan to make sure you score a 4 or choose on an alternate skill that you think the state should use as the benchmark and explain your thinking.
Objective (s) Numbers: Outcomes:	<b>4.01</b> The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.
Materials:	Textbook pages 613-615; Coordinate Planes (large and small); Practice 12.4B
Anticipatory Set:	Today we learn to use reflections to change the positions of figures on a coordinate plane.

### During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Interpretation) Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Model Reflections across the x axis, the y axis and the origin. Make sure that students note which coordinates do not change as related to the axis of reflection.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Use the Practice 12.4 B as the guided practice for this skill.

### After the Lesson

Independent Practice	Text page 614-615 {1-7, 10-13} <b>AIG:</b> {1-7, 10-13} Assign workbook page 12.4
Closure / Assessment:	Explain how the coordinates of a figure change when the figure is reflected across the <b>y</b> axis.
Reflection:	
Integration with School-wide Focus:	Improve mathematics computation and problem solving.



**LESSON**
**12-4**
**Practice B**
**Graphing Reflections**

Give the coordinates of the vertices of each figure after the given reflection.

1. Reflect  $\triangle XYZ$  across the  $x$ -axis.

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2. Reflect  $\triangle XYZ$  across the  $y$ -axis.

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3. Reflect  $\triangle ABC$  across the  $x$ -axis.

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4. Reflect  $\triangle ABC$  across the  $y$ -axis.

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5. Reflect square  $FGHJ$  across the  $y$ -axis.

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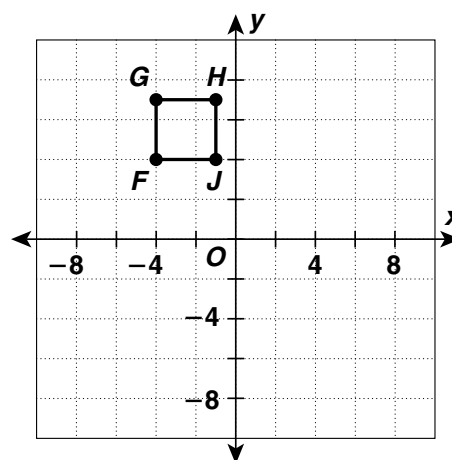
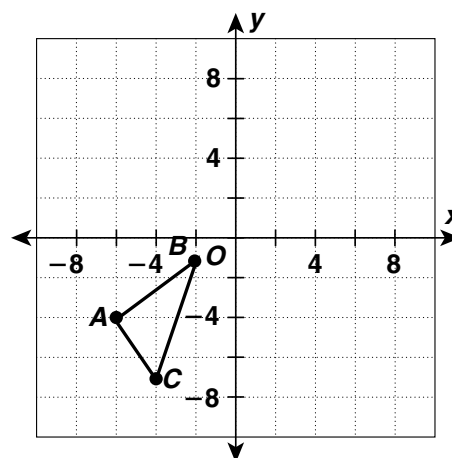
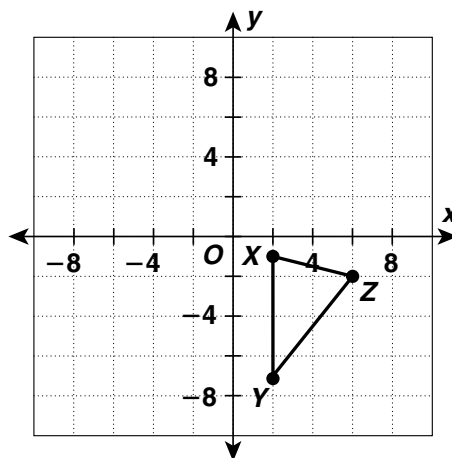
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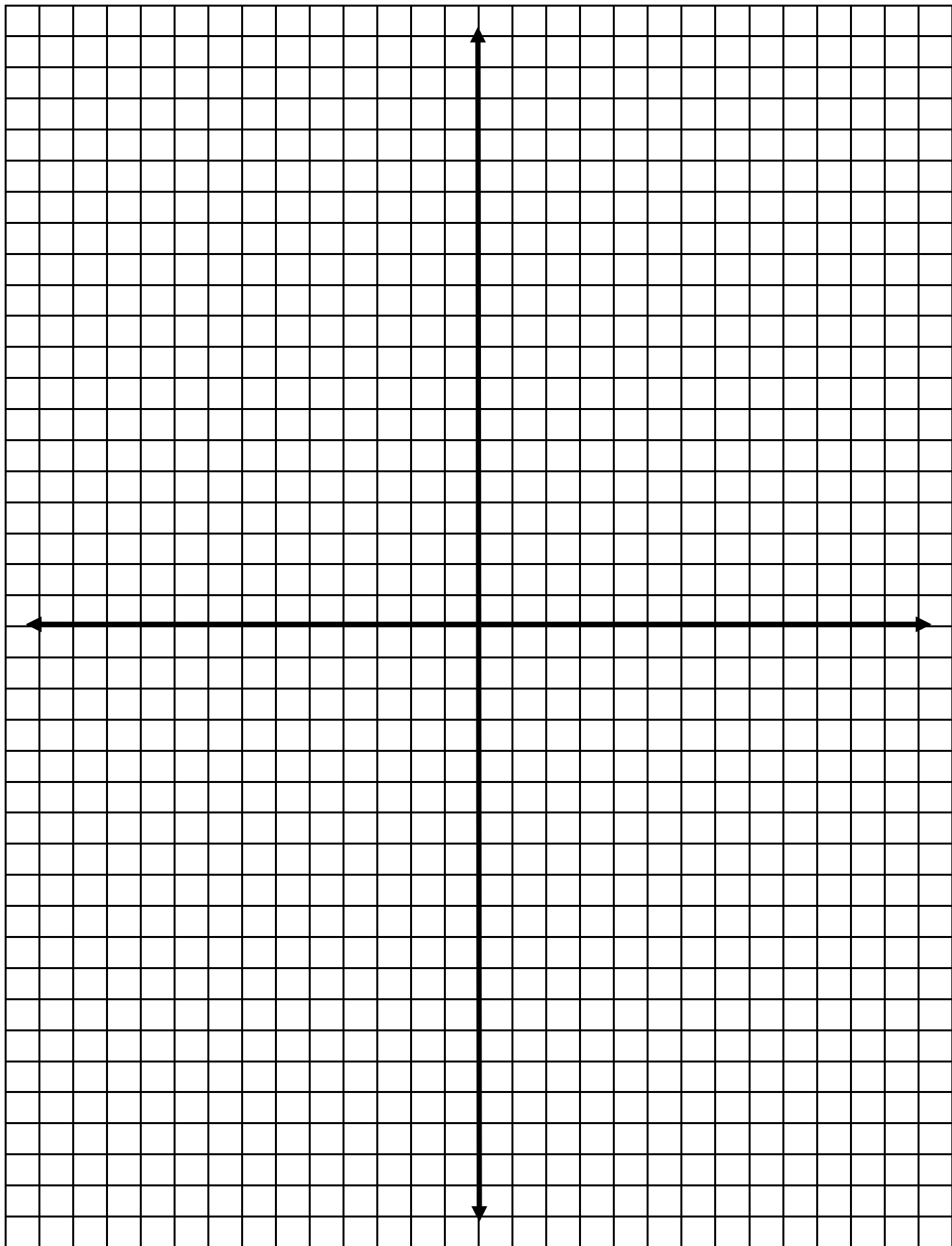
6. Reflect square  $FGHJ$  across the  $x$ -axis.

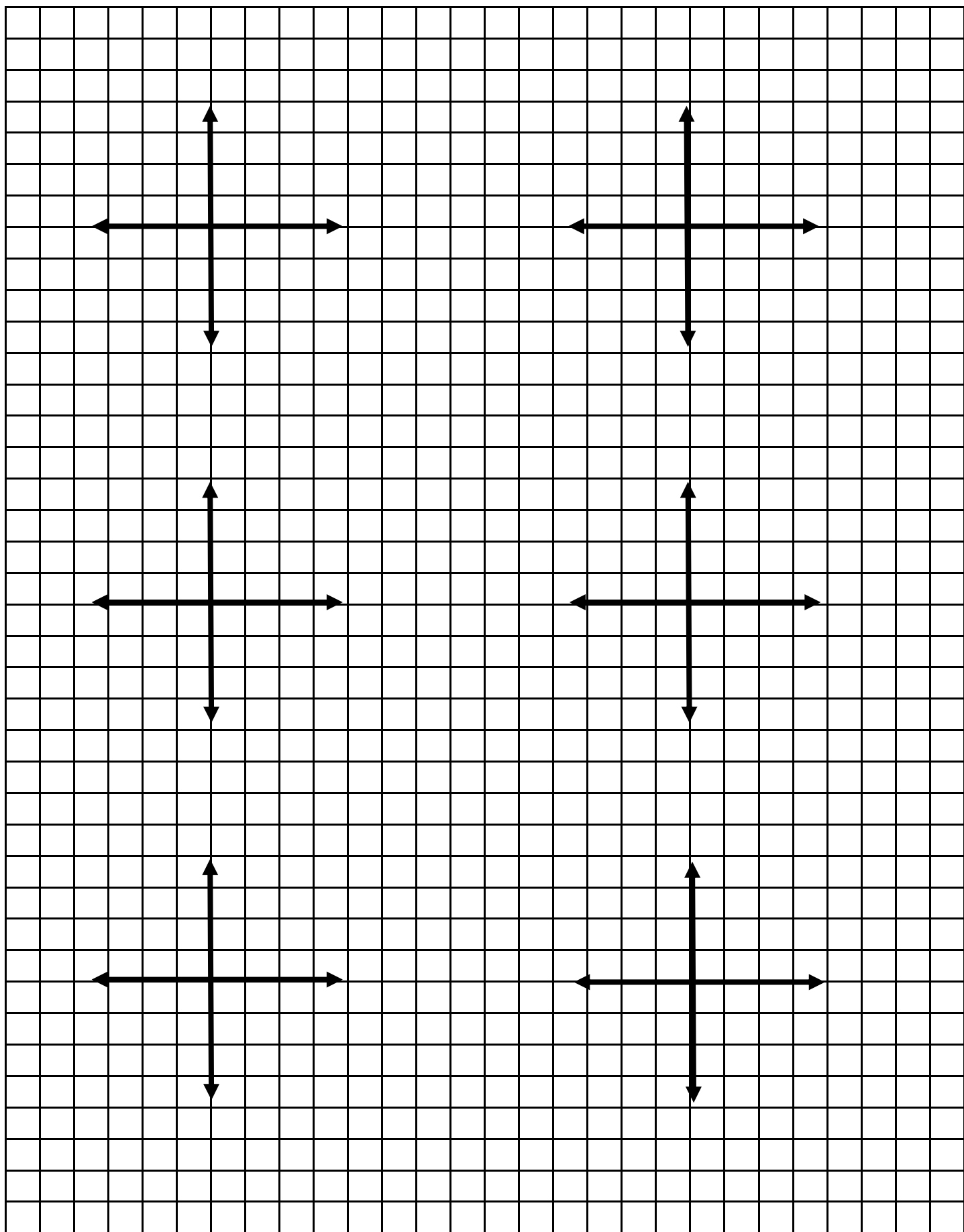
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# **Math Objectives**

## **4.01**

The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### Graphing Rotations

Essential Question:	Transforming figures on the coordinate plane is a fairly complicated process and the state will measure your aptitude using questions related to these skills. Students who master these skills will usually score level 4, while those who don't quite get it will score level 3. Either develop an action plan to make sure you score a 4 or choose on an alternate skill that you think the state should use as the benchmark and explain your thinking.
Objective (s) Numbers: Outcomes:	<b>4.01</b> The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.
Materials:	Textbook pages 616-619; Coordinate Planes (large and small); Practice 12.5B
Anticipatory Set:	Today we learn to use rotations to change the positions of figures on a coordinate plane.

### During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Application) Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Discuss rotating figures on a coordinate plane. Demonstrate 90o clockwise rotation about the origin, 180o rotation about the origin and 90o rotation about a point that is -1,+1 from a given vertex.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Use Practice 12.5 B as guided practice for this skill.

### After the Lesson

Independent Practice	Text page 618-619 {1-10, 20,21} <b>AIG:</b> {4-13, 20, 21} Assign workbook page 12.5
Closure / Assessment:	Tell how the x- and y-coordinates change when a figure is rotated counterclockwise 90° about the origin.
Reflection:	
Integration with School-wide Focus:	Improve mathematics computation and problem solving.

# **LESSON** **12-5** **Practice B** **Graphing Rotations**

Give the coordinates of the vertices of each figure after the given rotation.

1. Rotate  $\triangle XYZ$  clockwise  $90^\circ$  about the origin.

\_\_\_\_\_

\_\_\_\_\_

2. Rotate  $\triangle XYZ$  counterclockwise  $180^\circ$  about the origin.

\_\_\_\_\_

\_\_\_\_\_

3. Rotate rectangle  $ABCD$  counterclockwise  $90^\circ$  about the origin.

\_\_\_\_\_

\_\_\_\_\_

4. Rotate rectangle  $ABCD$  clockwise  $360^\circ$  about the origin.

\_\_\_\_\_

\_\_\_\_\_

5. Rotate square  $FGHJ$   $180^\circ$  clockwise about the origin.

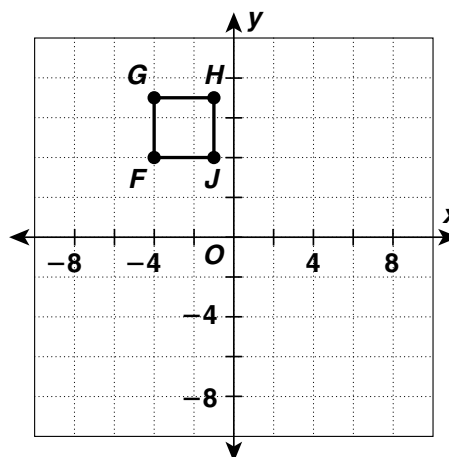
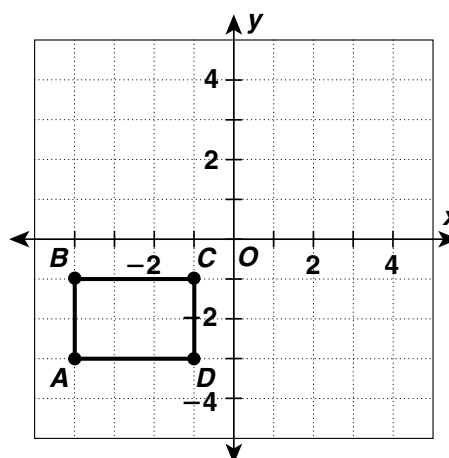
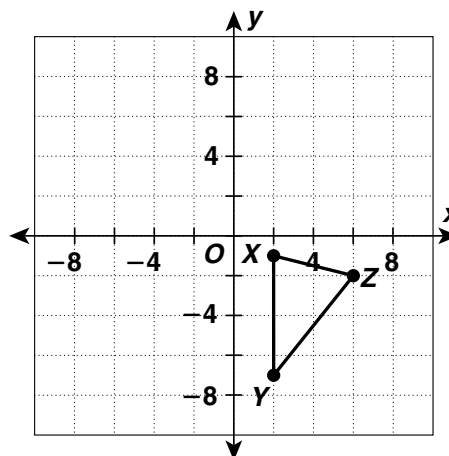
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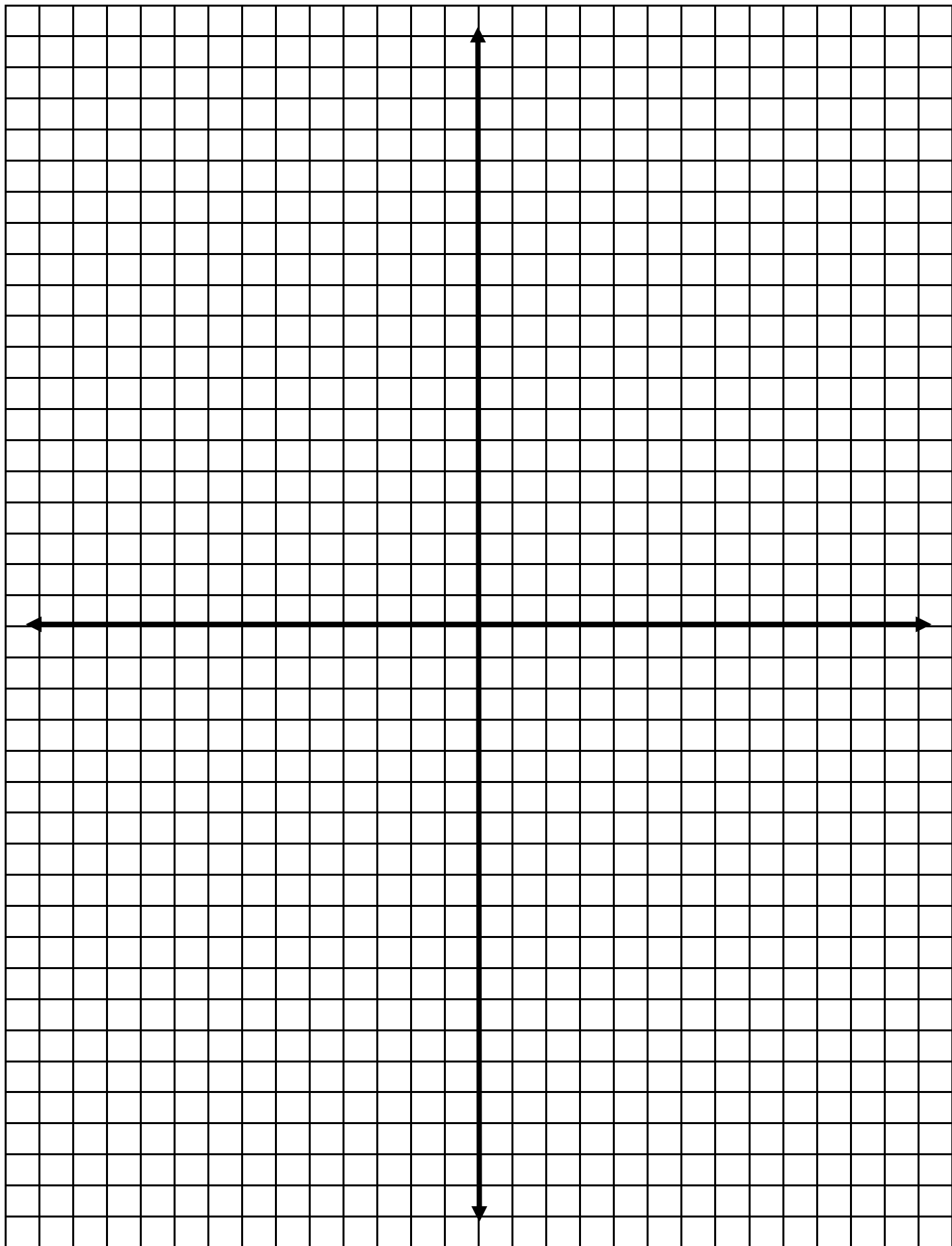
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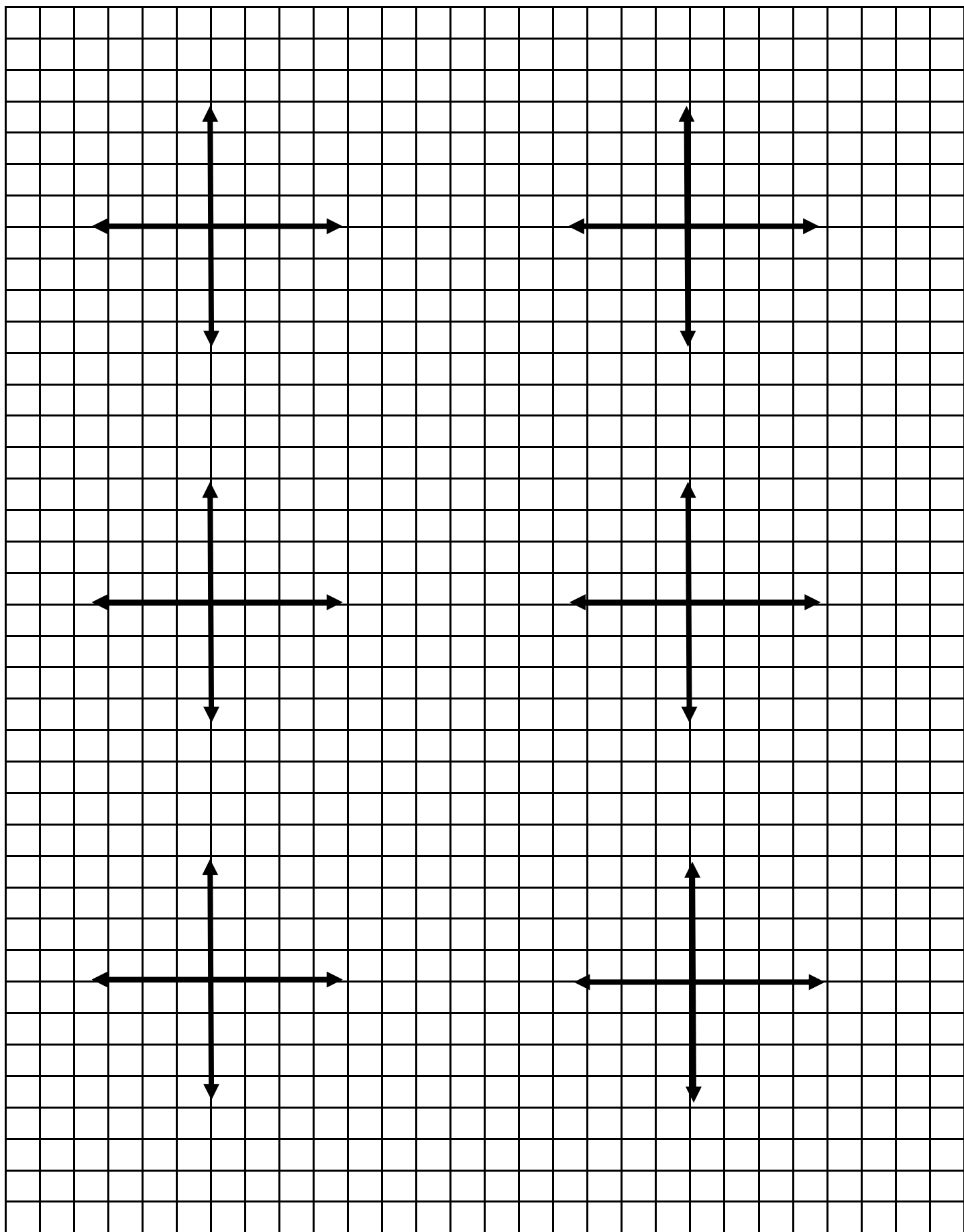
6. Rotate square  $FGHJ$   $90^\circ$  counterclockwise about the origin.

\_\_\_\_\_

\_\_\_\_\_









# **Math Objectives**

## **4.01**

The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### Stretching and Shrinking

**Essential Question:** Over the past four lessons you have learned how to transform figures on the coordinate plane. This is a fairly complicated process and the state will measure your aptitude using questions related to these skills. Students who master these skills will usually score level 4, while those who don't quite get it will score level 3. Either develop an action plan to make sure you score a 4 or choose on an alternate skill that you think the state should use as the benchmark and explain your thinking.

**Objective (s) Numbers:** **4.01**  
**Outcomes:** The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.

**Materials:** Textbook pages 620-623; graph paper  
**Anticipatory Set:** Today we will learn to visualize and show the results of stretching or shrinking a figure.

### During the Lesson

**Presentation of Information:**  
**Integration of Other Subjects:** Writing (analyze / application)  
Reading (vocabulary, problem solving, analyzing expectation)  
**Integration of Reading:** Reading for information and interpretation.  
**Integration of Technology:** Computer, Projector, PowerPoint, Internet

**Modeling:** Review dimensions, similar, congruent, horizontal and vertical.  
Model Stretching and Shrinking figures.  $\{H^*3\}$ ;  $\{V^*2\}$ ;  $\{H/2\}$ .  
Model creating similar figures  $\{H^*2\} + \{V^*2\}$ ;  $\{H/2\} + \{V/2\}$ .

**Differentiation:** 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

**Guided Practice:** Use problems 1-7 on text page 622 as guided practice.

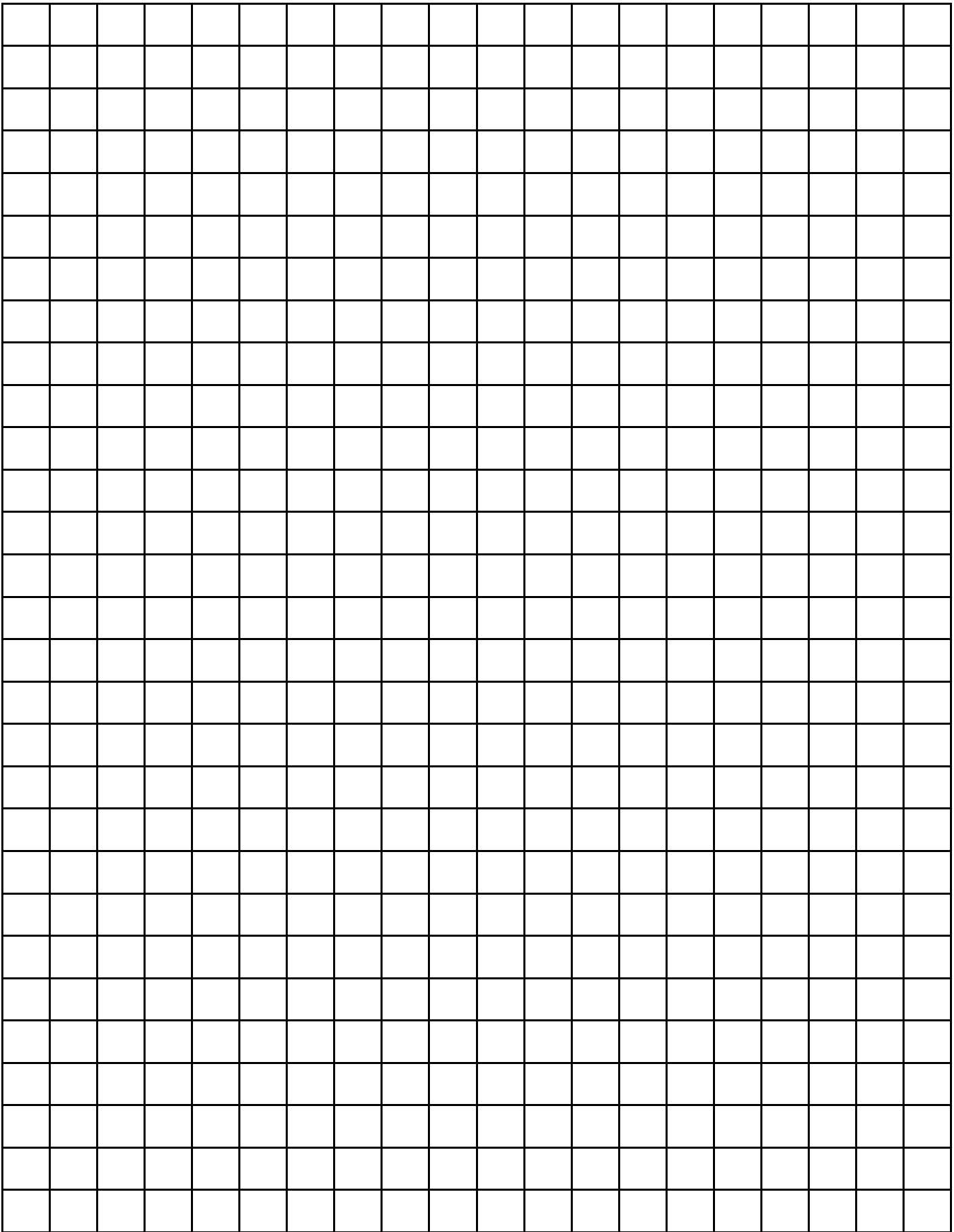
### After the Lesson

**Independent Practice** Text page 622-623 {8-11, 18}  
**AIG:** {8-11, 18}  
Assign workbook page 12.6

**Closure / Assessment:** Which dimensions of a figure can be changed so that the new figure is similar to the original?

**Reflection:**

**Integration with School-wide Focus:** Improve mathematics computation and problem solving.



# Math Objectives

**3.03; 3.04; 5.02; 5.03; 5.04**

Transform figures in the coordinate plane and describe the transformation; Solve problems involving geometric figures in the coordinate plane; Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### **Functions and Coordinate Geometry Review**

Essential Question:	What steps do you think have been the most helpful in preparing yourself for the examination on a set of skills? (decision making)
Objective (s) Numbers: Outcomes:	<b>3.03; 3.04; 5.02; 5.03; 5.04</b> Transform figures in the coordinate plane and describe the transformation; Solve problems involving geometric figures in the coordinate plane; Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.
Materials:	Textbook pages 628-631, 633; Test Form B
Anticipatory Set:	Today we will review the skills that we have been studying during this unit. We will practice test taking skills and remediate those skills about which we don't feel as comfortable as others.

### **During the Lesson**

Presentation of Information:	
Integration of Other Subjects:	Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Discuss the value of careful review, the process that should occur when errors are made and the importance of reviewing material that students are less comfortable with.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Discuss Instructions for the review on pages 628-631. Have the students review the Headings and address and questions or requests for immediate remediation.

### **After the Lesson**

Independent Practice	Text page 628-631 {1-19} <b>AIG:</b> {1-19} Assign Test Form B
Closure / Assessment:	Have co-operative learning groups review and discuss their answers before turning their papers in for correction by the teacher.
Reflection:	
Integration with School-wide Focus:	Improve mathematics computation and problem solving.

# CHAPTER 12

## Chapter Test Form B

Write an equation for a function that gives the values in each table. Use the equation to find the value of  $y$  for the indicated value of  $x$ .

1.

$x$	-2	-1	0	1	2	3
$y$	-7	-4	-1	2	5	??

2.

$x$	2	3	4	5	6	9
$y$	0	-1	-2	-3	-4	??

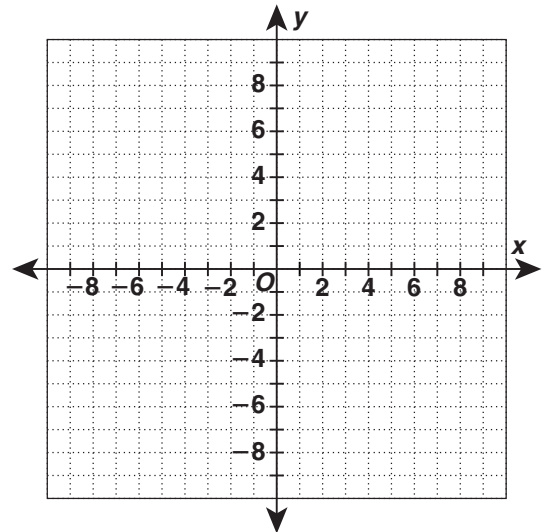
3. Write an equation for the function. Tell what each variable you use represents. The height of a triangle is 6 more than the base.

4. Use the given  $x$ -values to write solutions of each equation as ordered pairs.  $y = 7x - 3$  for  $x = 0, 1, 2, 3$

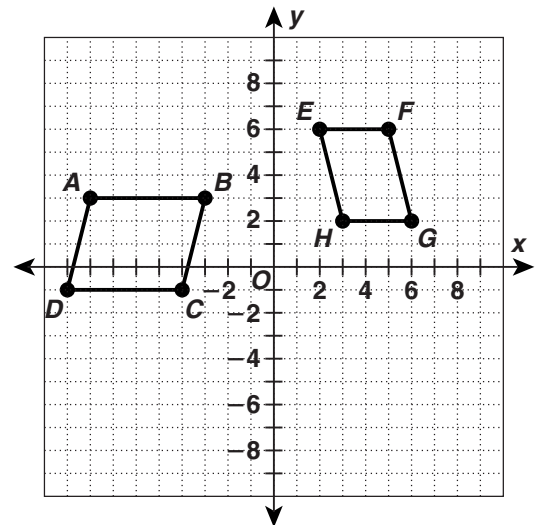
5. Determine whether each ordered pair is a solution of the given equation.  $(3, 15); y = 6x - 2$

Graph the function.

6.  $y = x + 6$



Give the coordinates of the vertices of each figure after the given translation.

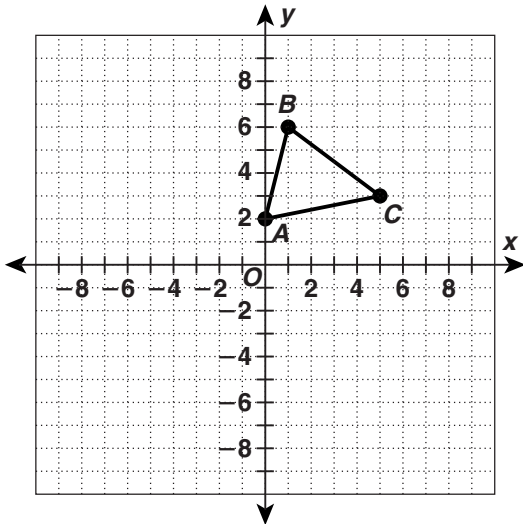


7. Translate parallelogram  $ABCD$  2 units right and 1 unit up.

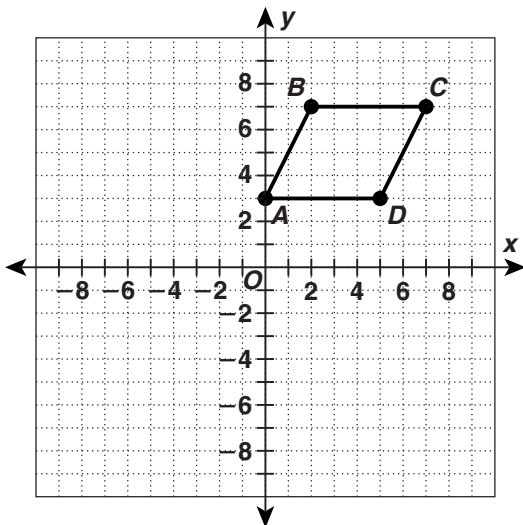
8. Translate parallelogram  $EFGH$  3 units left and 2 units down.

**CHAPTER 12** **Chapter Test**  
**Form B, continued**

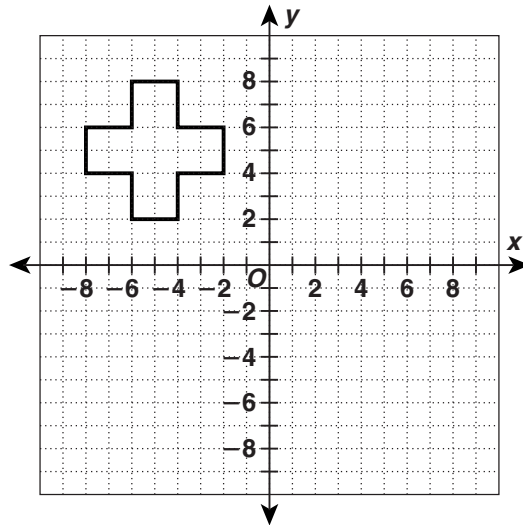
9. Reflect triangle  $ABC$  across the  $x$ -axis.



10. Rotate parallelogram  $ABCD$  clockwise  $180^\circ$  about the origin.



Stretch or shrink the figure as stated and give the new vertical and horizontal dimensions.



11. Increase the horizontal dimension by a factor of 2.

Write an equation for the function. Tell what each variable you use represents.

12. A feed company tracked dog food sales. The company charges the same price for each 50-pound bag of Barky dog food. On Monday, 14 bags were sold for a total of \$238. On Tuesday, 7 bags were sold for a total of \$119. On Friday, 18 bags were sold for a total of \$306. Write an equation for the price function.

Instructor: \_\_\_\_\_  
Subject: Math Grade 6

Time Frame: **80 minutes**  
Date: \_\_\_\_\_

### **Functions and Coordinate Geometry Assessment**

Essential Question: With the EOGs rapidly approaching, what action plan will you implement to ensure that you are well prepared and perform well?

Objective (s) Numbers: **3.03; 3.04; 5.02; 5.03; 5.04**  
Outcomes: Transform figures in the coordinate plane and describe the transformation; Solve problems involving geometric figures in the coordinate plane; Use and evaluate algebraic expressions; Solve simple (one-and two-step) equations or inequalities; Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.

Materials: Cumulative Assessment (Form B)  
Anticipatory Set: Today we will assess our mastery of Functions and Coordinate Geometry.

### **During the Lesson**

Presentation of Information:  
Integration of Other Subjects: Writing (evaluation)  
Reading (vocabulary, problem solving, analyzing expectation)  
Integration of Reading: Reading for information and interpretation.  
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review the Practice Test, answer questions and model answers.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Discuss the Instructions.

### **After the Lesson**

Independent Practice Assign Cumulative Review Test Form B

Closure / Assessment: Write a paragraph evaluation of your expected performance on this test. What did you do well on? What did you have trouble with? How did you prepare for this test and what would you like to do differently for the next exam?  
Choose a Journal entry to share with your class.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.



## CHAPTER

## 12

## Cumulative Test

## Form B

Select the best answer.

- Which ordered pair is a solution of the equation  $y = 5x - 1$ ?  
**A** (4, 1)                      **C** (4, 21)  
**B** (-2, -10)                **D** (-4, -21)
- What is 35% of 220?  
**F** 7.7                          **H** 110  
**G** 77                           **J** 112
- A figure has the following vertices:  $A(0, 4)$ ,  $B(3, 8)$ , and  $C(4, 0)$ . What are the vertices of the figure after a reflection across the  $y$ -axis?  
**A** (0, 4); (-3, 8); (0, -4)  
**B** (0, 4); (-3, -8); (0, -4)  
**C** (0, 0); (-3, -8); (4, 0)  
**D** (0, 4); (-3, 8); (-4, 0)
- What kind of transformation is shown?  
**F** translation  
**G** rotation  
**H** reflection  
**J** tessellation



- What is the volume of a cylinder with diameter 7 cm and height 9 cm? Use 3.14 for  $\pi$ .  
**A**  $197.82 \text{ cm}^3$             **C**  $724.38 \text{ cm}^3$   
**B**  $346.19 \text{ cm}^3$             **D**  $1384.74 \text{ cm}^3$
- What is the probability of rolling a number less than 4 on a fair number cube?  
**F**  $\frac{2}{3}$                               **H**  $\frac{1}{4}$   
**G**  $\frac{1}{6}$                               **J**  $\frac{1}{2}$

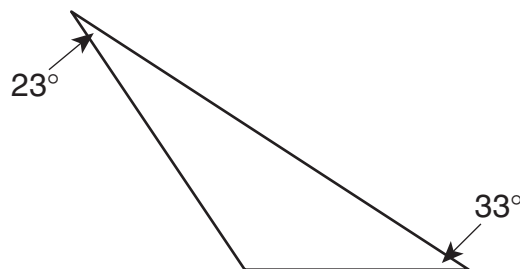
7. Multiply  $7\frac{1}{5} \cdot 3\frac{1}{2}$ .

- A**  $21\frac{1}{10}$                       **C**  $28\frac{4}{5}$   
**B**  $25\frac{1}{5}$                       **D**  $32\frac{1}{5}$

- Which set of integers is in order from least to greatest?  
**F** 6, 7, -2, 0                **H** -7, -5, -2, 3  
**G** 8, 9, -2, -4              **J** 2, -4, 8, -9

- Evaluate the expression  $x^2 + 3$  for  $x = 5$ .  
**A** 7                              **C** 21  
**B** 13                            **D** 28

- What is the measure of the missing angle in the triangle below?



- F**  $134^\circ$                       **H**  $78.5^\circ$   
**G**  $56^\circ$                       **J**  $124^\circ$

- What is the area of a triangle with base 12 inches and height 4.8 inches?  
**A**  $16.8 \text{ in}^2$                 **C**  $57.6 \text{ in}^2$   
**B**  $28.8 \text{ in}^2$                 **D**  $62.8 \text{ in}^2$
- Solve  $-8x = 72$ .  
**F**  $x = -9$                       **H**  $x = 64$   
**G**  $x = 9$                         **J**  $x = -64$

## CHAPTER

## 12

**Cumulative Test****Form B, continued**

13. What is 4,568 written in scientific notation?  
**A**  $4.568 \times 10^3$       **C**  $4.568 \times 10^5$   
**B**  $4.56 \times 10^3$       **D**  $4.56 \times 10^{-4}$
14. Which set of numbers is in order from least to greatest?  
**F**  $\frac{3}{4}$ ; 18%; 0.72      **H**  $\frac{2}{3}$ , 70%, 0.68  
**G** 21%,  $\frac{1}{5}$ ; 0.24      **J** 0.72, 86%;  $\frac{7}{8}$
15. A circle has a diameter of 15 inches. What is the circumference of the circle rounded to the nearest hundredth? Use 3.14 for  $\pi$ .  
**A** 23.55 in.      **C** 176.63 in.  
**B** 47.1 in.      **D** 706.5 in.
16. What is eleven million, forty-two thousand, eight hundred four in numerals?  
**F** 1,142,804      **H** 11,042,804  
**G** 11,420,804      **J** 110,420,804
17. What is the median of the following group of numbers?  
111 110 120 118 116 114  
**A** 114.83      **C** 115  
**B** 114      **D** 118
18. Fallon made quiche for dinner last night. He and his family ate  $\frac{2}{3}$  of it and saved the rest. The next day Fallon's sister ate  $\frac{1}{2}$  of the remainder for lunch. What fraction of the original quiche is left?  
**F**  $\frac{1}{6}$       **H**  $\frac{1}{2}$   
**G**  $\frac{1}{3}$       **J**  $\frac{3}{4}$
19. Ribbon in a craft store costs \$0.75 per yard. Celeste needs to buy  $8\frac{1}{2}$  yards. To the nearest penny, how much will that quantity cost?  
**A** \$6.00      **C** \$8.15  
**B** \$6.38      **D** \$8.25
20. Which of the following decimals has the least value?  
**F** 0.0014      **H** 0.014  
**G** 0.0104      **J** 0.14
21. A special blend of wild birdseed costs \$16.99 for 20 pounds. To the nearest penny, how much will 50 pounds cost?  
**A** \$33.98      **C** \$50.00  
**B** \$42.48      **D** \$52.16
22. If one gallon of water weighs 8.35 pounds, about how much would a 15-gallon container of water weigh?  
**F** 100 lb      **H** 135 lb  
**G** 120 lb      **J** 200 lb
23. What is the perimeter of a rectangle with a length of 18 cm and a width of 12 cm?  
**A** 30 cm      **C** 60 cm  
**B** 45 cm      **D** 216 cm
24. Which of the angle measures form an acute triangle?  
**F**  $10^\circ$ ,  $40^\circ$ ,  $130^\circ$   
**G**  $50^\circ$ ,  $50^\circ$ ,  $50^\circ$   
**H**  $35^\circ$ ,  $80^\circ$ ,  $65^\circ$   
**J**  $40^\circ$ ,  $30^\circ$ ,  $100^\circ$

**CHAPTER 12** **Cumulative Test**  
**Form B, continued**

25. Which statement is NOT true?

- A**  $-12 + 3 > -16 + 4$   
**B**  $-15 - 3 = -3 \times 6$   
**C**  $-9 + 12 < -2 + 19$   
**D**  $-28 \div 7 > -21 - (-18)$

26. Which algebraic expression means “8 more than three times a number”?

- F**  $3(x + 8)$       **H**  $3 + (x + 8)$   
**G**  $3x + 8$       **J**  $5x - 3$

27. What is the perimeter of a square with an area of  $49 \text{ ft}^2$ ?

- A** 7 ft      **C** 28 ft  
**B** 14 ft      **D** 49 ft

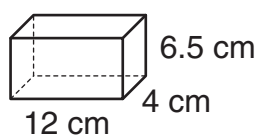
28. There are 14 red marbles, 16 black marbles, and 10 green marbles in a bag. What is the probability of picking a black marble from the bag?

- F**  $\frac{1}{5}$       **H**  $\frac{1}{2}$   
**G**  $\frac{2}{5}$       **J**  $\frac{4}{5}$

29. A pizza parlor offers 10 different pizza toppings, 2 types of dough, and 3 types of crusts. How many different choices do you have for a one-topping pizza?

- A** 13      **C** 30  
**B** 15      **D** 60

30. What is the surface area of the figure shown?



- F**  $96 \text{ cm}^2$       **H**  $304 \text{ cm}^2$   
**G**  $148 \text{ cm}^2$       **J**  $312 \text{ cm}^2$

31. Which number would complete the function table?

<b>x</b>	3	5	7	9
<b>y</b>	2	6	10	??

- A** 10      **C** 14  
**B** 12      **D** 16

32. A bag contains green and purple chips. The probability of drawing a green chip is  $\frac{11}{15}$ . What is the probability of drawing a purple chip?

- F**  $\frac{4}{15}$       **H**  $\frac{1}{2}$   
**G**  $\frac{11}{15}$       **J**  $\frac{3}{4}$

33. The distance you need to travel measures 6 inches on a map. The actual trip distance is 150 miles. What is the scale on the map?

- A** 1 in. : 5 mi  
**B** 1 in. : 144 mi  
**C** 1 in. : 25 mi  
**D** 1 in. : 60 mi

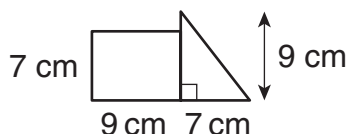
34. For which month(s) did the Dogs Wash have a profit?

<b>Dogs Wash</b>		
<b>Month</b>	<b>Washes (\$5.00 each)</b>	<b>Expenses</b>
May	106 washes	\$234
June	130 washes	\$725
July	174 washes	\$150

- F** May and June      **H** May and July  
**G** June and July      **J** May only

**CHAPTER**
**12**
**Cumulative Test**
**Form B, continued**

35. Find the area of the figure.



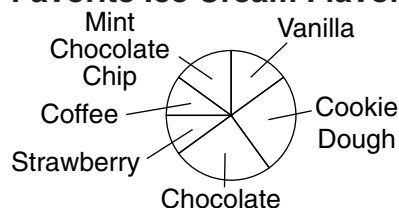
- A**  $112 \text{ cm}^2$       **C**  $126 \text{ cm}^2$   
**B**  $94.5 \text{ cm}^2$       **D**  $144 \text{ cm}^2$
36. Find  $7^4$ .
- F** 28      **H** 2,401  
**G** 726      **J** 16,384
37. At a certain college, of the 212 students entering the pre-veterinary program only 22 completed the program. What fraction of the students completed the program?
- A** 2      **C**  $\frac{1}{22}$   
**B**  $\frac{11}{106}$       **D**  $\frac{13}{109}$
38. What is the prime factorization of 140?
- F**  $2^2 \times 5 \times 7$       **H**  $2^3 \times 3 \times 5$   
**G**  $2^3 \times 3 \times 5$       **J**  $2^2 \times 3 \times 5 \times 7$
39. What is the value of  $9 + 3(6 + 4) \div 5$ ?
- A** 7.8      **C** 34  
**B** 15      **D** 30
40. What is the GCF of 45 and 105?
- F** 5      **H** 15  
**G** 9      **D** 270
41. Divide  $23.68 \div 3.2$ .
- A** 3.2      **C** 8.1  
**B** 7.4      **D** 9.4

42. Stella works three afternoons per week at a local flower shop. She earns \$35 per day. How many weeks will Stella have to work in order to earn \$315?

**F** 3 weeks      **H** 9 weeks  
**G** 5 weeks      **J** 10 weeks

43. Use the circle graph below to find the approximate percent of people who named mint chocolate chip as their favorite flavor of ice cream.

**Favorite Ice Cream Flavors**



**A** 15%      **C** 35%  
**B** 25%      **D** 50%

44. Bon Voyage Cruise lines booked 1,256 passengers for a trip to the Bahamas. There were 212 cancellations. How many people took the cruise?

**F** 944      **H** 1,468  
**G** 1,044      **J** 1,821

Name \_\_\_\_\_

**Functions and Coordinate Geometry Assessment**

1	A	B	C	D
2	F	G	H	J
3	A	B	C	D
4	F	G	H	J
5	A	B	C	D
6	F	G	H	J
7	A	B	C	D
8	F	G	H	J
9	A	B	C	D
10	F	G	H	J
11	A	B	C	D
12	F	G	H	J
13	A	B	C	D
14	F	G	H	J
15	A	B	C	D
16	F	G	H	J
17	A	B	C	D
18	F	G	H	J
19	A	B	C	D
20	F	G	H	J
21	A	B	C	D
22	F	G	H	J
23	A	B	C	D
24	F	G	H	J

25	A	B	C	D
26	F	G	H	J
27	A	B	C	D
28	F	G	H	J
29	A	B	C	D
30	F	G	H	J
31	A	B	C	D
32	F	G	H	J
33	A	B	C	D
34	F	G	H	J
35	A	B	C	D
36	F	G	H	J
37	A	B	C	D
38	F	G	H	J
39	A	B	C	D
40	F	G	H	J
41	A	B	C	D
42	F	G	H	J
43	A	B	C	D
44	F	G	H	J

Name \_\_\_\_\_

**Functions and Coordinate Geometry Assessment**

1	A	B	C	D
2	F	G	H	J
3	A	B	C	D
4	F	G	H	J
5	A	B	C	D
6	F	G	H	J
7	A	B	C	D
8	F	G	H	J
9	A	B	C	D
10	F	G	H	J
11	A	B	C	D
12	F	G	H	J
13	A	B	C	D
14	F	G	H	J
15	A	B	C	D
16	F	G	H	J
17	A	B	C	D
18	F	G	H	J
19	A	B	C	D
20	F	G	H	J
21	A	B	C	D
22	F	G	H	J
23	A	B	C	D
24	F	G	H	J

25	A	B	C	D
26	F	G	H	J
27	A	B	C	D
28	F	G	H	J
29	A	B	C	D
30	F	G	H	J
31	A	B	C	D
32	F	G	H	J
33	A	B	C	D
34	F	G	H	J
35	A	B	C	D
36	F	G	H	J
37	A	B	C	D
38	F	G	H	J
39	A	B	C	D
40	F	G	H	J
41	A	B	C	D
42	F	G	H	J
43	A	B	C	D
44	F	G	H	J

Functions and Coordinate Geometry Assessment

1	A	B	C	
2	F		H	J
3	A	B	C	
4	F		H	J
5	A		C	D
6	F	G	H	
7	A		C	D
8	F	G		J
9	A	B	C	
10	F	G	H	
11	A		C	D
12		G	H	J
13		B	C	D
14	F	G	H	
15	A		C	D
16	F	G		J
17	A	B		D
18		G	H	J
19	A		C	D
20		G	H	J
21	A		C	D
22	F		H	J
23	A	B		D
24	F	G		J

25	A	B	C	
26	F		H	J
27	A	B		D
28	F		H	J
29	A	B	C	
30	F	G		J
31	A	B		D
32		G	H	J
33	A	B		D
34	F	G		J
35	A		C	D
36	F	G		J
37	A		C	D
38		G	H	J
39	A		C	D
40	F	G		J
41	A		C	D
42		G	H	J
43		B	C	D
44	F		H	J

Chapter 12 Assessment

3	100%
2	70%
1	45%
0	0%