

**New!**

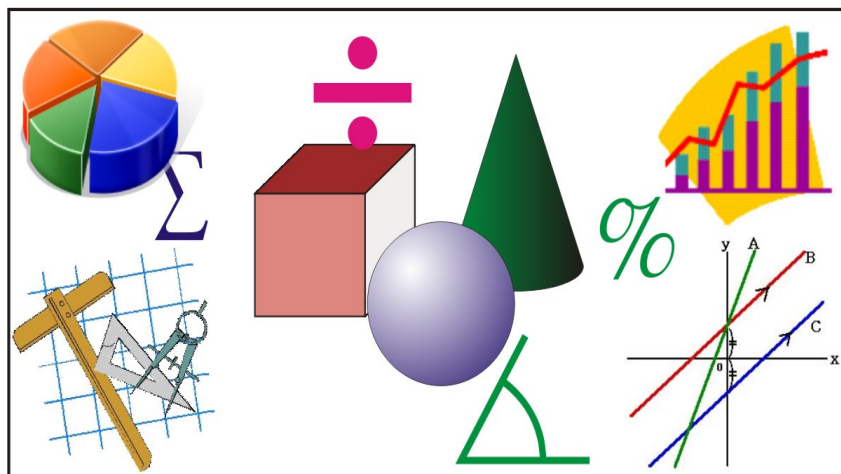
**DISTRIBUTED LEARNING**

**TERM #3**

**MATHEMATICS GRADE 7**

**Designed from the WNCP Curriculum  
for the Western Provinces and the Territories**

**STUDENT GUIDE AND  
RESOURCE BOOK**



**BASED ON THE WESTERN PROTOCOLS FOR 2008 AND BEYOND**



**Raven Research Associates, Inc.**

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## TERM #3 - MATHEMATICS GRADE 7

### Welcome to Term #3 of Grade 7 Mathematics.

#### Term Overviews

In Terms #1 and #2 you completed work on the following topics:

- Decimals, Fractions and Percent
- Integers
- Patterns and Relations
- Word and Mathematical Statements
- Variables and Equations
- Circles and Central Angles

In Term #3 you will be work the following topics:

- Measurement Part 2
- Data Analysis
- Probability

#### The Mathematics 7 Course

This Distributed Learning Mathematics 7 course is designed to help you to learn important concepts in mathematics and to undertake related tasks in the environment.

It requires that you work on your own and with assistance from teachers of Distributed Learning. To help this happen key concepts in the course are clearly described with examples that include step-by-step solutions. Numerous practice exercises are provided to help reinforce the knowledge and skills you develop. The answers to each of these exercises are provided at the end of this book.

Within each term booklet are send-in exercises which you are to complete and send to your teacher for marking. In this way you will get feedback on your strengths as well as areas in need of further assistance.

Each module begins with a pre-test that you are required to write. Results from the pre-test provide information about which content you already know and which areas require additional study.

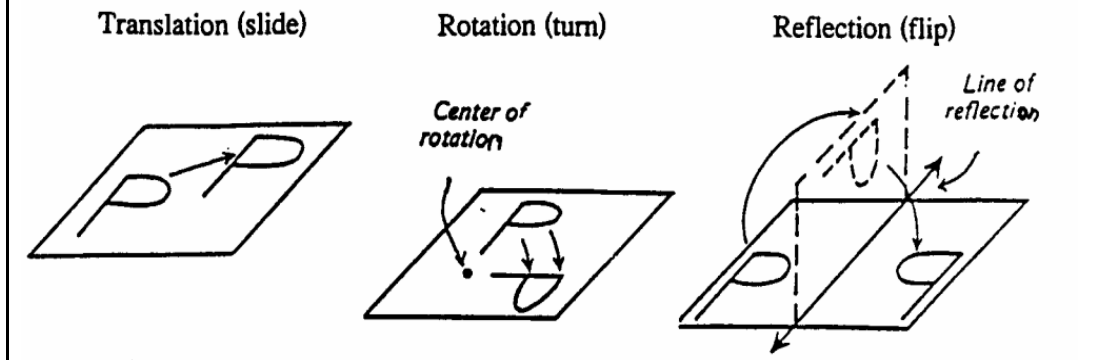
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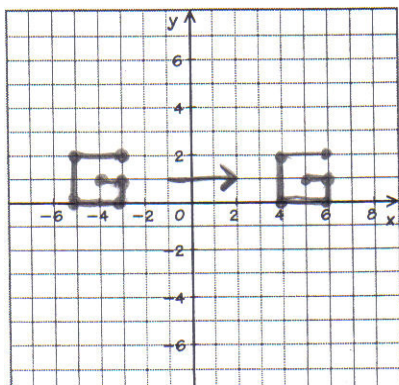
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*SAMPLE LESSON***LESSON # 22 – Transformations of 2-D Objects**

- Recall from last year that a transformation is a movement of a figure in a plane or the movement of an object in space.
- There are three basic ways to move a figure in a plane – slide it, turn it, or flip it.
- Mathematical terms for these movements are as follows:
  - Slide – a translation
  - Turn – a rotation
  - Flip – a reflection
- An example of each movement is shown next.

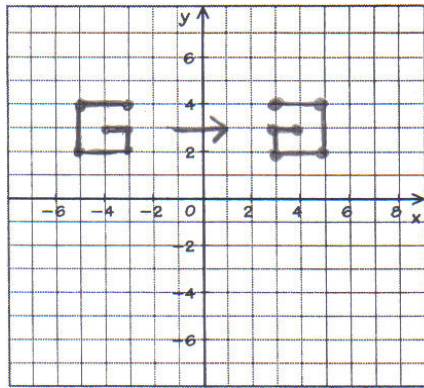
**Examples with Step-by-Step Solutions**

1. Name the type of transformation (a slide or translation, a turn or rotation, or a flip or reflection) that moves each figure or symbol in the direction of the arrow.

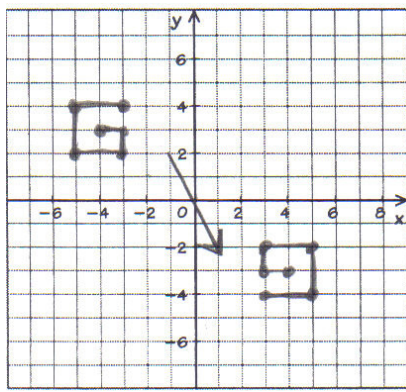


*Solution:*

- A slide or translation
- The G has moved sideways



- A flip or reflection
- Pretend the y-axis is a mirror
- Notice that both figures are 3 units from the y-axis



- A turn or rotation
- Notice that the rotation is clockwise  $180^\circ$  and the centre of rotation is the origin.

### Practice Exercises Lesson #22

1. Name the type of transformation ( a slide or translation, a turn or rotation, or a flip or reflection) that moves the figure on the left to the figure on the right.

a.



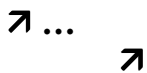
answer \_\_\_\_\_

b.



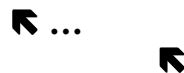
answer \_\_\_\_\_

c.



answer \_\_\_\_\_

d.



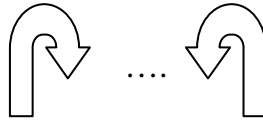
answer \_\_\_\_\_

e.



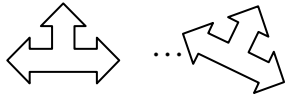
answer \_\_\_\_\_

f.



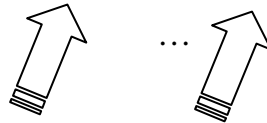
answer \_\_\_\_\_

g.



answer \_\_\_\_\_

h.



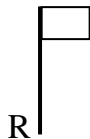
answer \_\_\_\_\_

2. Draw each shape, using the transformation asked for next.

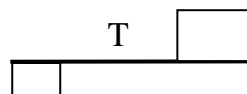
a. Draw a transformation of the following figure translated approximately 2 cm to the right and 2 cm down.



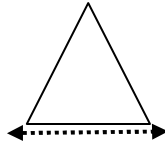
b. Rotate the following figure  $90^\circ$  to the right (one quarter turn) about Point R.



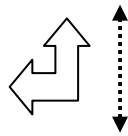
d. Rotate the following figure  $180^\circ$  (one half turn) to the left about Point T.



e. Flip the following figure about the dotted line.

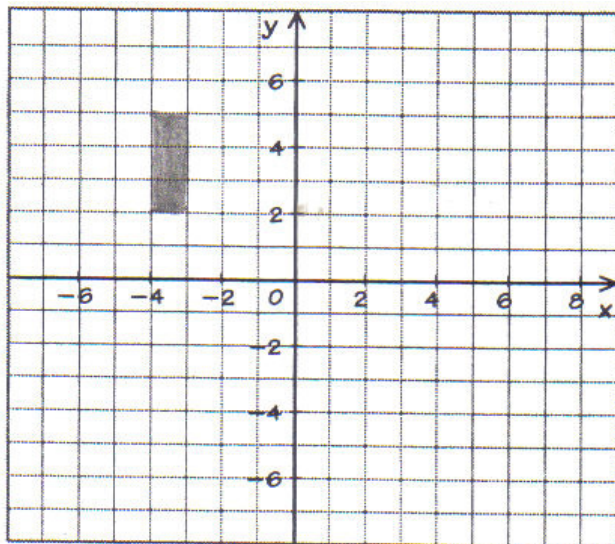


f. Flip the following figure about the dotted line.

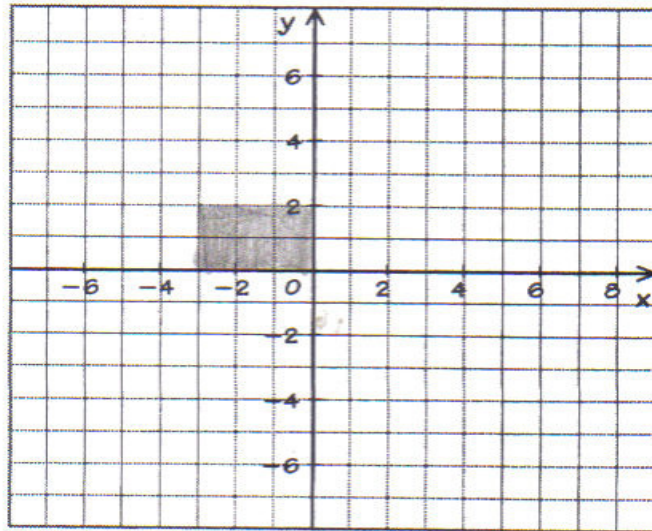


3. Draw the given diagram in each of three new locations. Start with the original diagram each time and then translate it as described below.

- a) a slide of 9 units right. Label it A
- b) a slide of 6 units down. Label it B
- c) a slide of 9 units right and a slide of 6 units down. Label it C



4. Draw the given diagram in each of three new locations. Start with the original diagram each time and then rotate it as described below.
- a  $90^\circ$  turn clockwise about the origin. Label it A.
  - a  $180^\circ$  turn clockwise about the origin. Label it B.
  - a  $360^\circ$  turn clockwise about the origin. Label it C.



5. Draw the given diagram in each of two new locations. Start with the original diagram each time and then flip it as described below.
- a flip with the y-axis acting as a mirror. Label it A.
  - a flip with the x-axis acting as a mirror. Label it B.

