

Important Concepts . . .

Preview Review



Mathematics Grade 6 TEACHER KEY

W3 - Lesson 1: Transformations

Important Concepts of Grade 6 Mathematics

W1 - Lesson 1	Basic Facts, Basic Operations, and Integers
W1 - Lesson 2	Place Value, Whole Numbers, Decimals, and Common Fractions
W1 - Lesson 3	Improper Fractions and Mixed Numbers
W1 - Lesson 4	Ratios and Percents
W1 - Lesson 5	Number Operations with Decimals
W1 - Quiz	
W2 - Lesson 1	Factors, Multiples, and Prime Factorizations
W2 - Lesson 2	Metric Measurement
W2 - Lesson 3	Perimeter and Area
W2 - Lesson 4	Surface Area and Volume
W2 - Lesson 5	Working with Angles and Drawing Objects and Shapes
W2 - Quiz	
W3 - Lesson 1	Transformations
W3 - Lesson 2	Bar Graphs, Line Graphs, and Circle Graphs
W3 - Lesson 3	Collecting and Analyzing Data
W3 - Lesson 4	Number Patterns, Magic Squares, and Problem Solving
W3 - Lesson 5	Probability and Outcomes
W3 - Quiz	

Materials Required: A textbook is not needed. This is a stand-alone course.

Mathematics Grade 6

Version 5

Preview/Review W3 - Lesson 1 TEACHER KEY

Publisher: Alberta Distance Learning Centre

Author: Elgin Pawlak

In-House Teacher: Sue Rees

Project Coordinator: Dennis McCarthy

Preview/Review Publishing Coordinating Team: Nina Johnson,

Laura Renkema, and Donna Silgard



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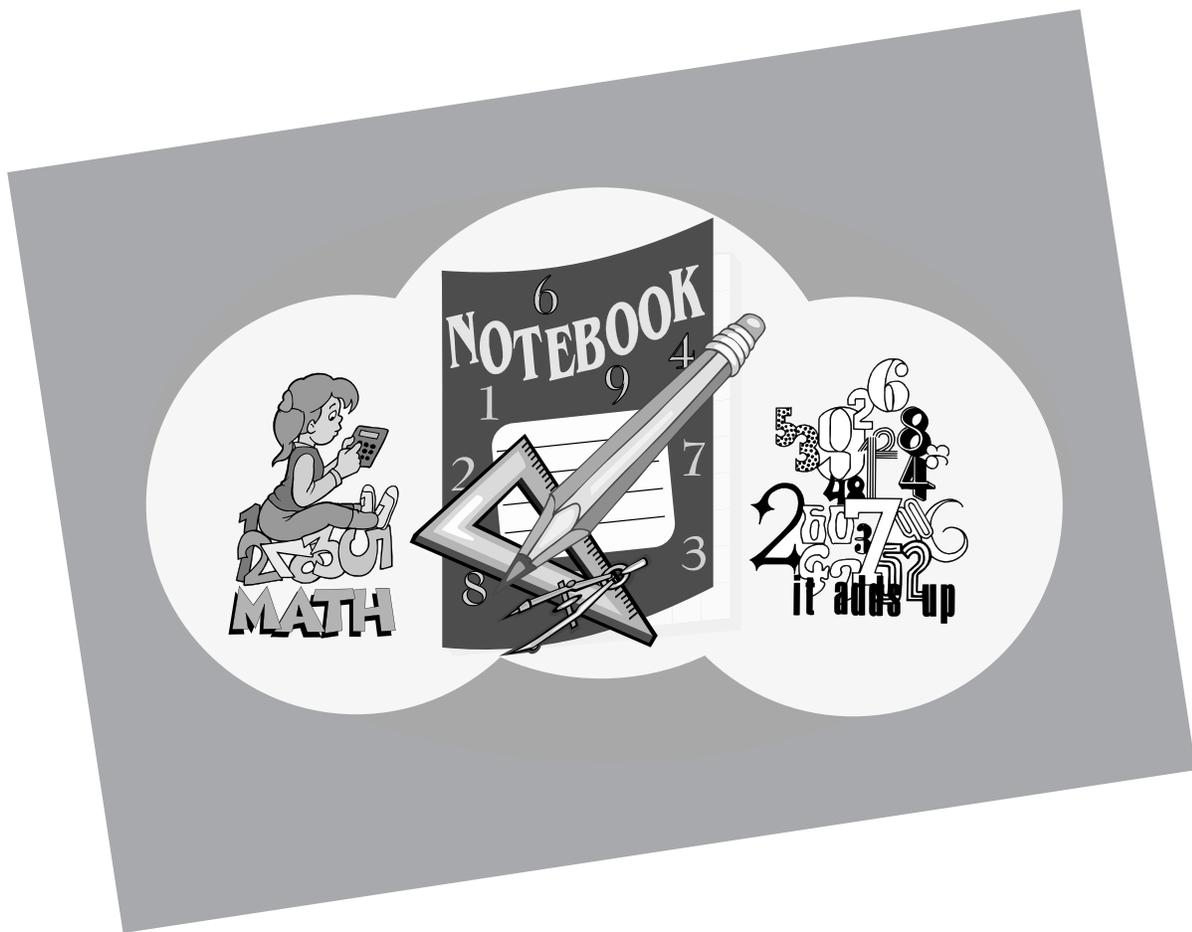
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Preview/Review Concepts for Grade Six Mathematics

TEACHER KEY



***W3 - Lesson 1:
Transformations***

OBJECTIVES

By the end of this lesson, you should

- understand the basics of motion geometry
- slide, flip, and turn geometric figures accurately

GLOSSARY

flip - reversing or flipping an object

flip image - an exact image of the original image, but in reverse

flip line - lines showing the direction of the flip

slide - movement of a figure from one position to another

slide arrow - arrow showing the direction and distance of the slide

turn - movement of an object around a point; rotation

W3 - Lesson 1: Transformations

Welcome to W3 - Lesson 1! The actual names for each of the common words in the chart are more accurate, but you will use the common names in these lessons.

Common Names	Actual Names
slide	translation
flip	reflection
turn	rotation

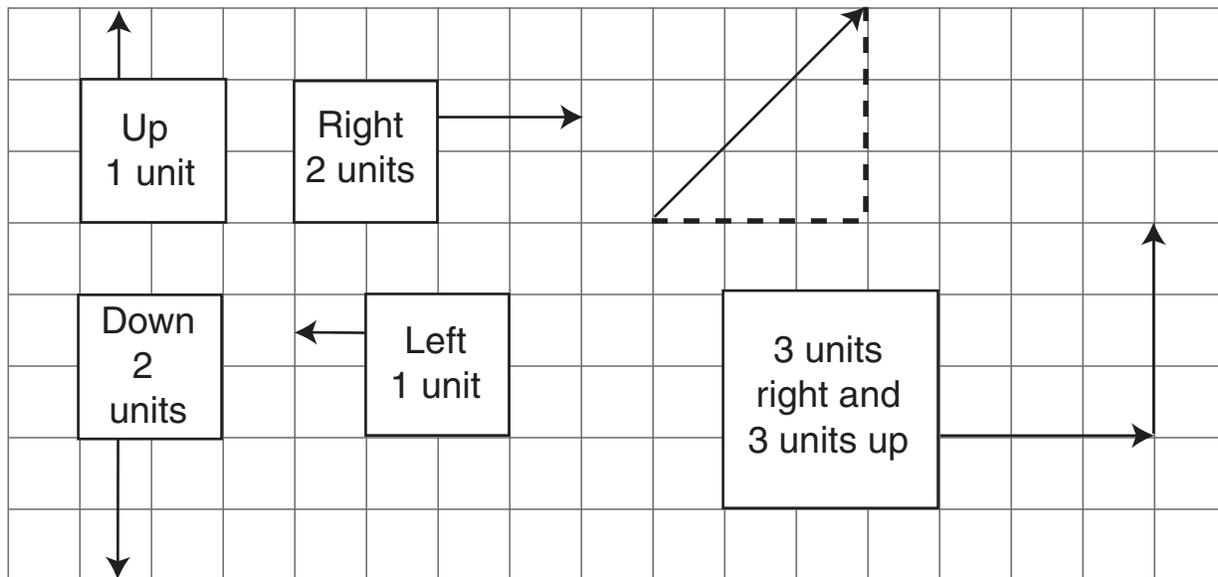
Motion geometry requires you to “see” the picture in your mind, but you can always try to move the object to be certain you moved it correctly.

Slides

A **slide** is the movement of a figure from one position to another. The figure in the new position is called the **slide image**.

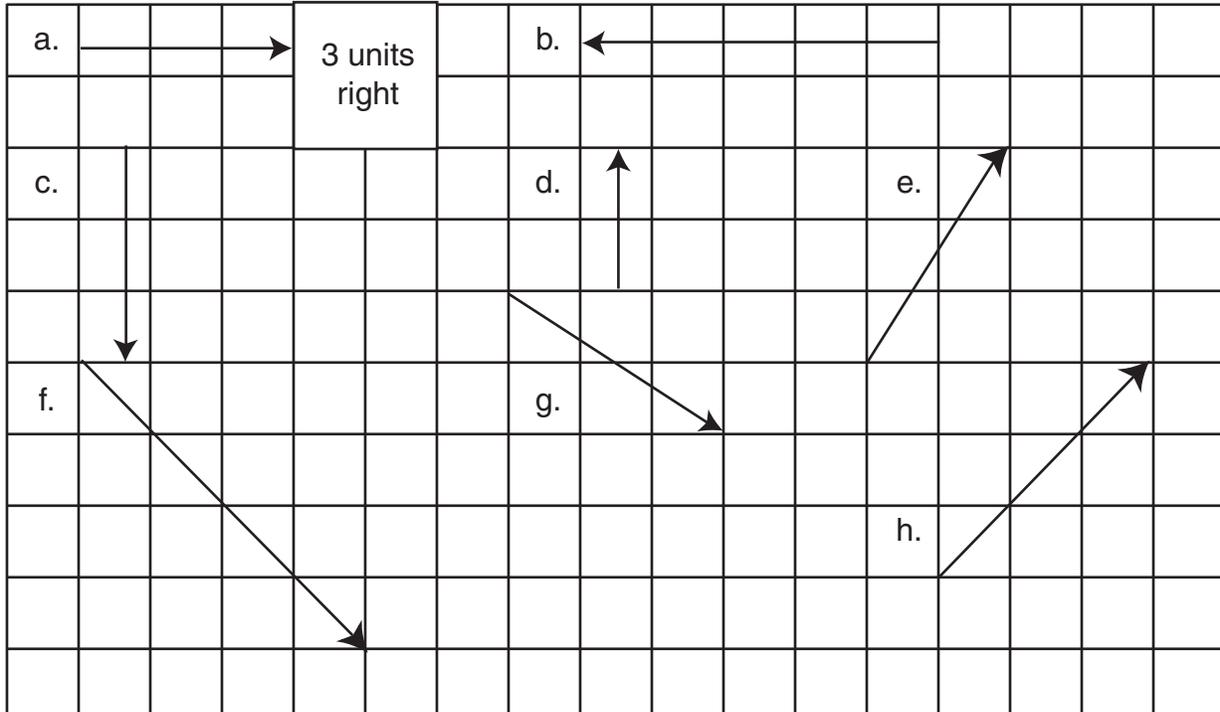
A **slide arrow** shows the direction and distance of the movement between the original figure and the slide image.

Below are some examples of slide arrows.



Questions

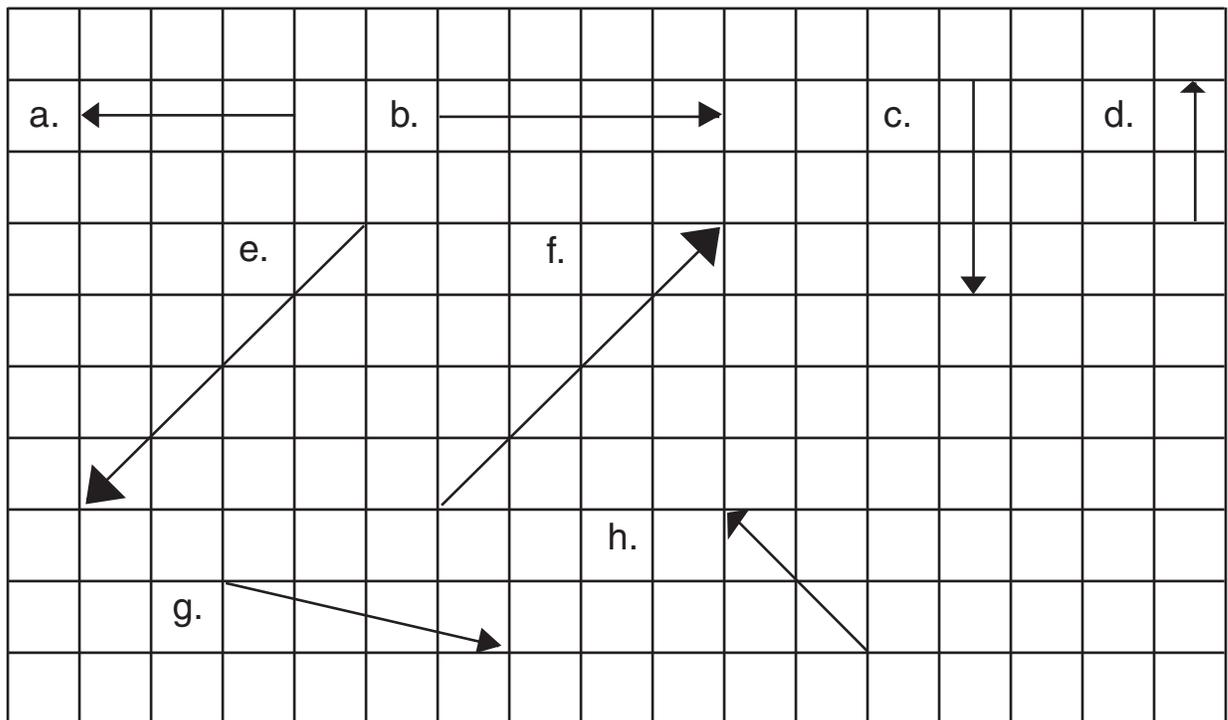
1. Write the meaning of each slide arrow. Write your answers below the grid in the spaces provided. The first one is done as an example.



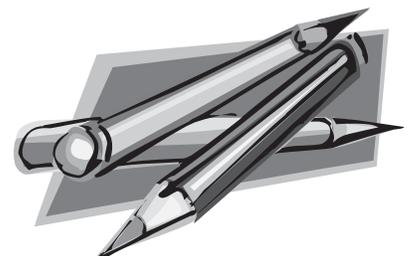
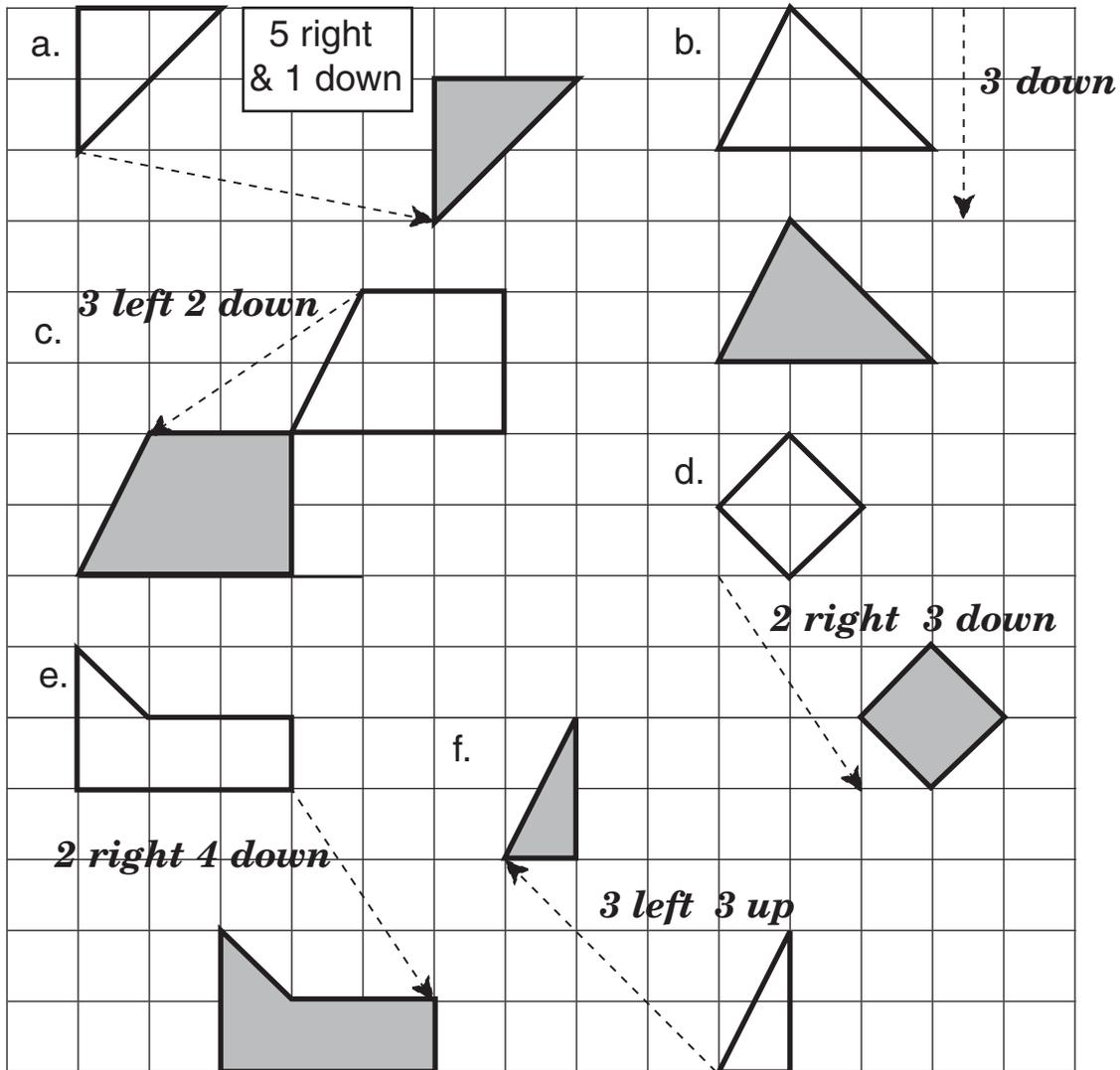
- a. ***Example: 3 units right*** _____
- b. ***5 units left*** _____
- c. ***3 units down*** _____
- d. ***2 units up*** _____
- e. ***2 units right, 3 units up*** _____
- f. ***4 units down, 4 units right*** _____
- g. ***2 units down, 3 units right*** _____
- h. ***3 units right, 3 units up*** _____

2. Draw slide arrows that show the following moves. Name each arrow (question a, b, c, etc). Use the grid below to draw your arrows.

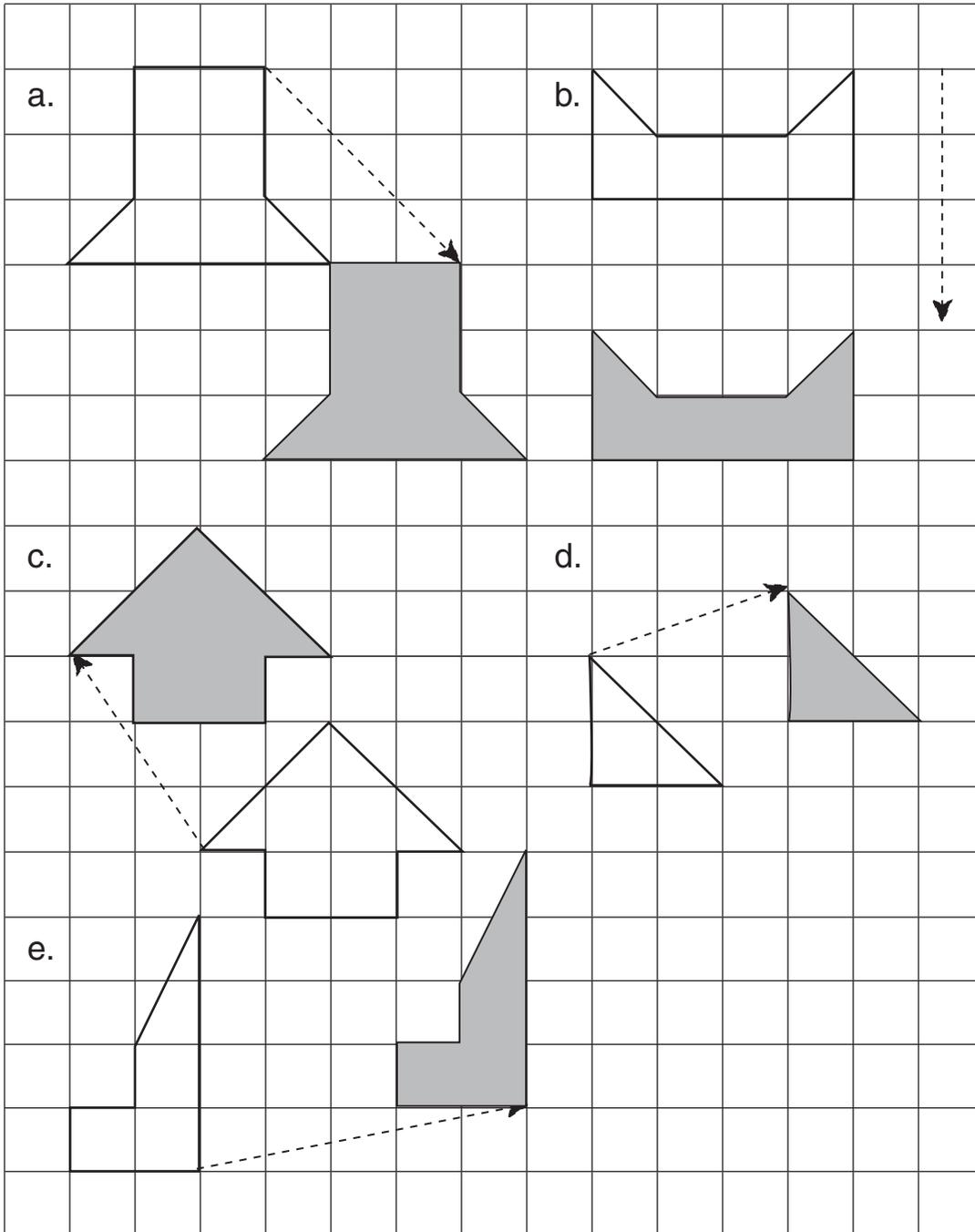
- a. left 3 units (L3)
- b. right 4 units (R4)
- c. down 3 units (D3)
- d. up 2 units (U2)
- e. left 4 units and down 4 units (L4, D4)
- f. right 4 units and up 4 units (R3, U4)
- g. right 4 units and down 1 unit (R4, D1)
- h. left 2 units and up 2 units (L2, U2)



3. Draw the slide image for each of the following figures. The first one is an **example** of how it should be done. The slide arrow indicates the direction and length of the slide. **Label** each arrow to show how the slide was made.



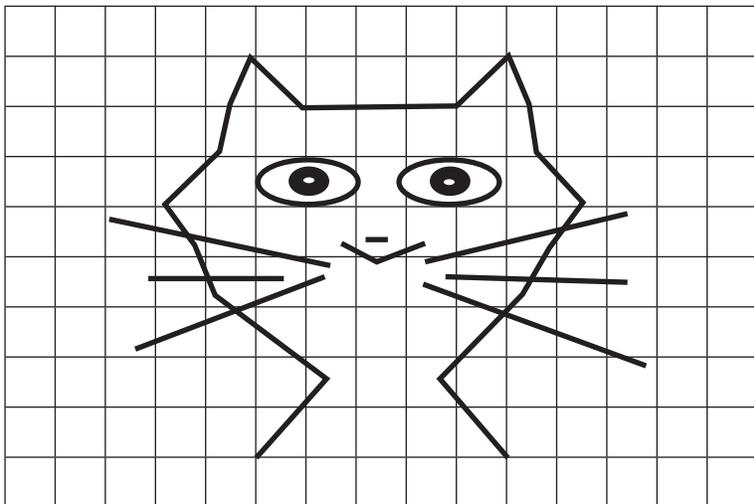
4. Draw a slide image for each figure. Use the slide arrows for the direction and length of the moves.



** Check for accuracy*

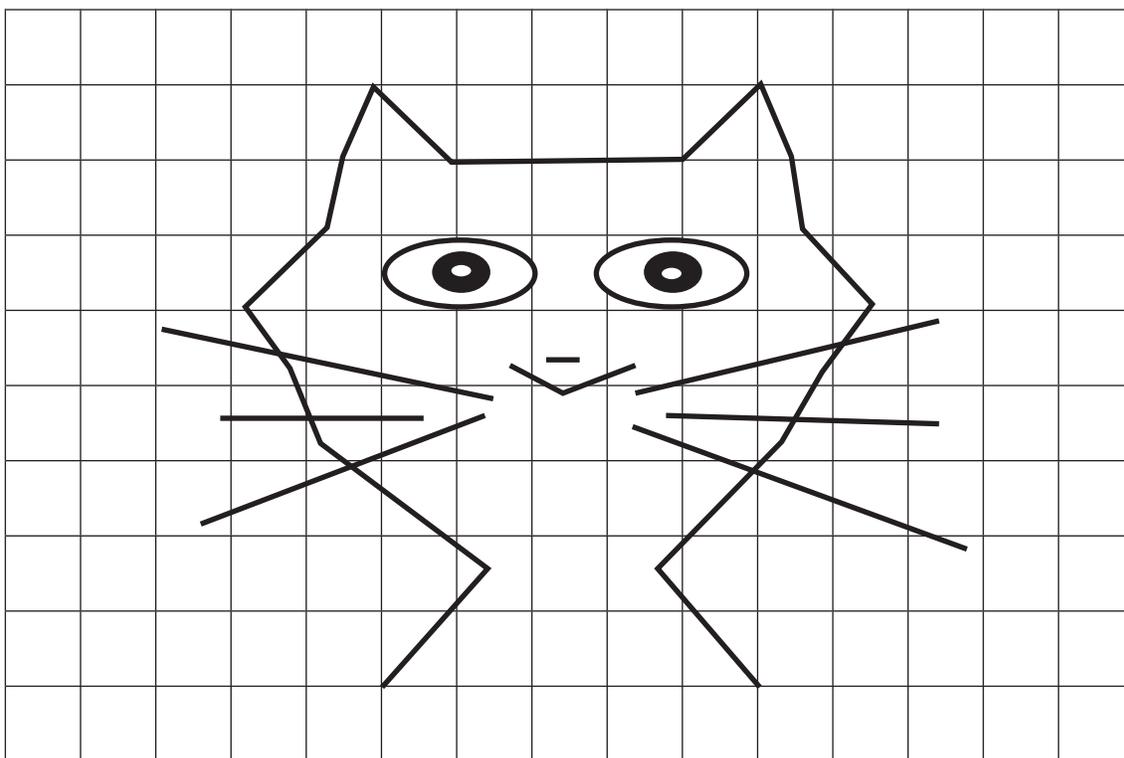
5. Draw the picture of the cat that is on grid 1 onto grid 2. Your drawing is an enlargement.

Grid 1



Note enlargement and accuracy

Grid 1

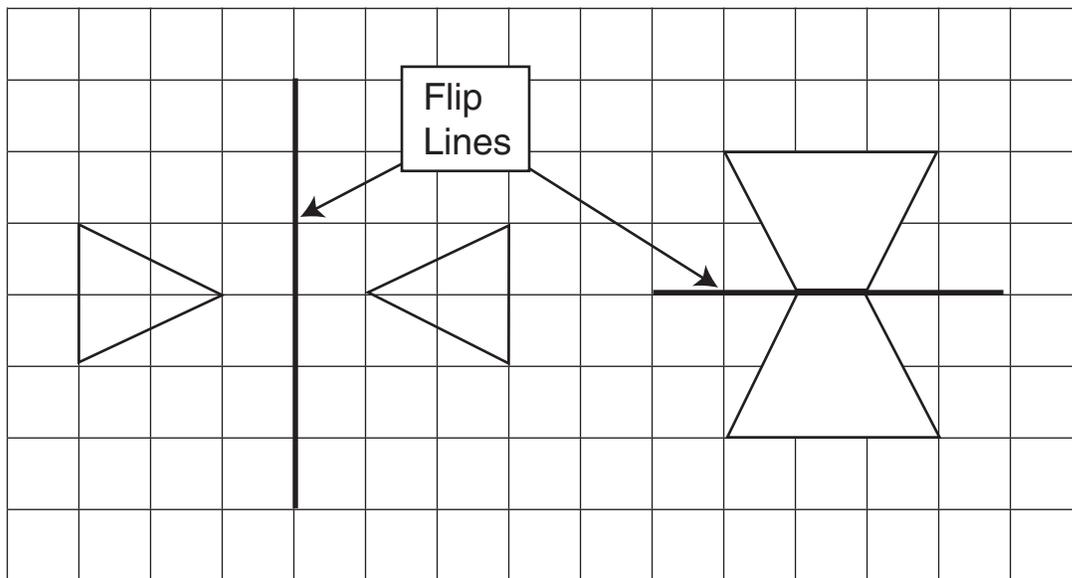
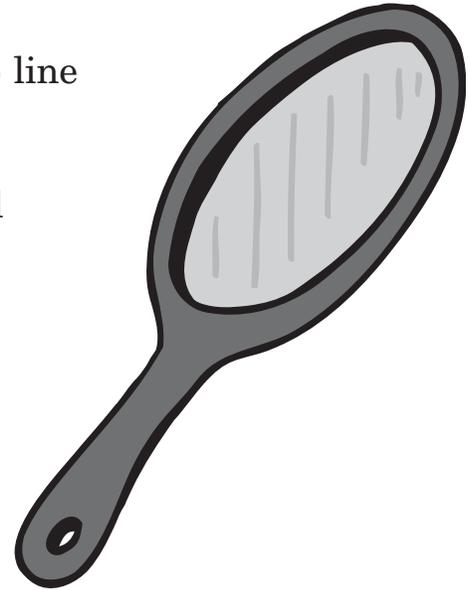


Flips

A **flip** occurs when an object or figure is flipped over. The shape of the object or figure is not changed. A flip can be done in any direction. The direction of the flip is determined by the **flip line**.

A **flip line** sets the direction of the flip. The flip line may touch the figure or may be away from it.

The **flip image** is an exact image of the original figure. The location of the flip image is determined by the flip line. When you draw a figure and a flip image on a paper, the figure and flip image will match perfectly when you fold the paper along the flip line. Below are two examples. Try folding the paper on the flip line.



Questions

1. Draw a flip image of the following figures.

The grid contains five sets of figures, each with a figure and a vertical line of reflection:

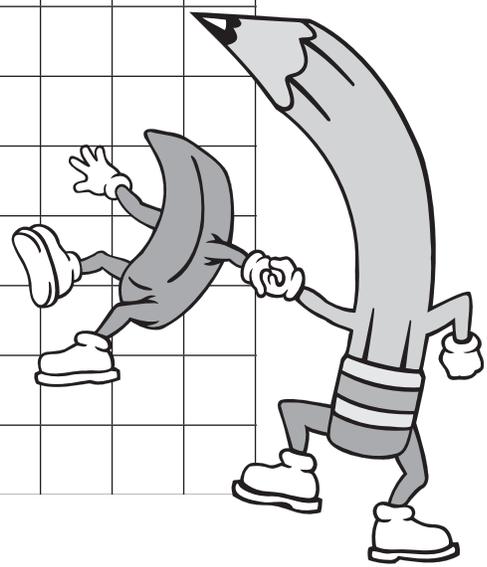
- a.** A right-angled triangle with its right angle at the top-left. The hypotenuse is on the right. A vertical line of reflection is to its right.
- b.** A vertical rectangle with a downward-pointing triangle on its right side. A horizontal line of reflection is to its left.
- c.** A shape resembling a wide 'M' or a rectangle with a V-shaped notch at the top. A horizontal line of reflection is below it.
- d.** A diamond shape (rhombus) pointing up. A horizontal line of reflection is below it.
- e.** A square with both diagonals drawn. A vertical line of reflection is to its right.

Check for accuracy

f.

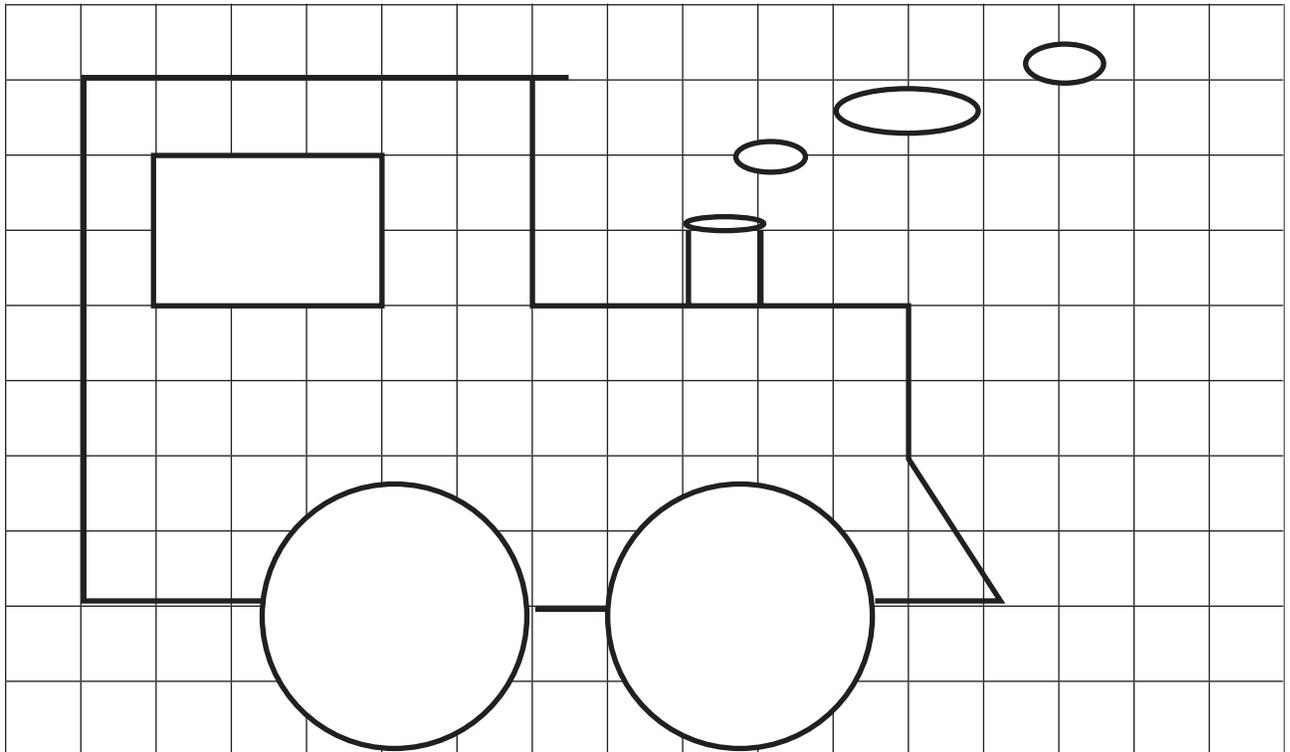
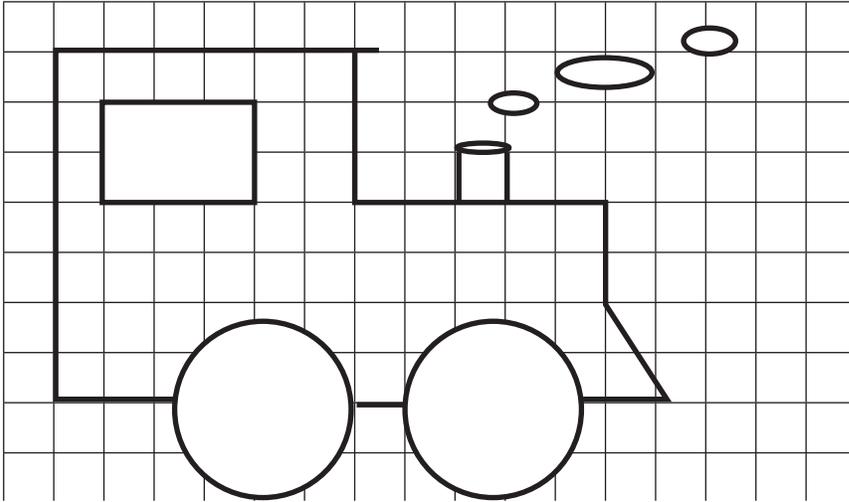
h.

g.



2. Draw an enlargement of this picture onto grid 2.

Grid 1



Check for accuracy and enlargement

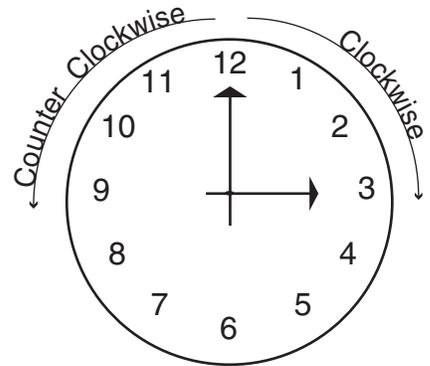
Turns

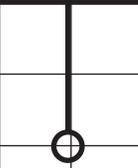
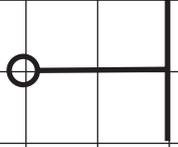
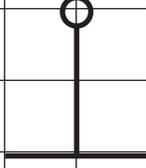
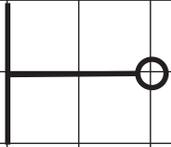
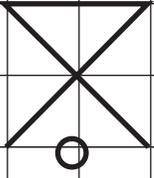
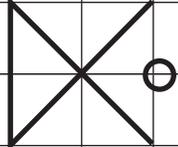
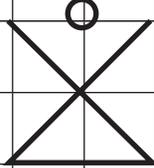
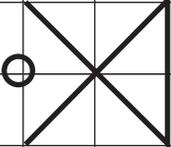
A **turn** occurs when an object or figure is rotated around a single point. This point is called the **turn centre**. A turn does not change the shape or size of an object or figure. Turns may be clockwise or counterclockwise.

You can work with the following turns. The circle with the dot in the middle is the turn centre.

Clockwise: the same direction as the hands of a clock move.

Counter Clockwise: the opposite direction as the hands of a clock move.

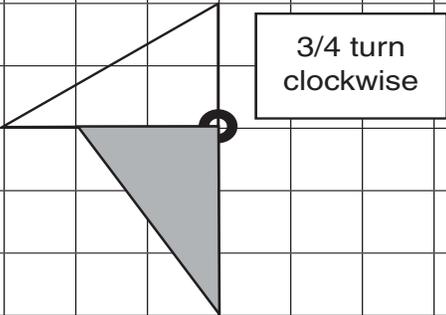
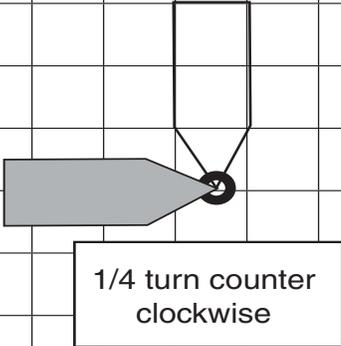
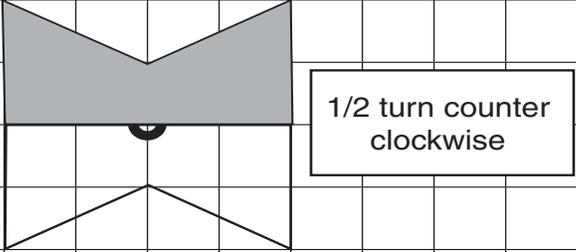
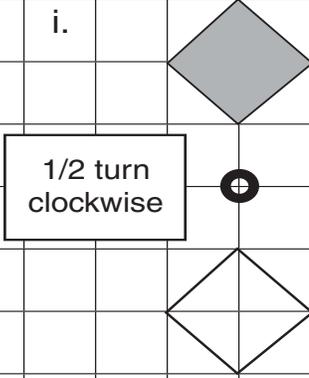
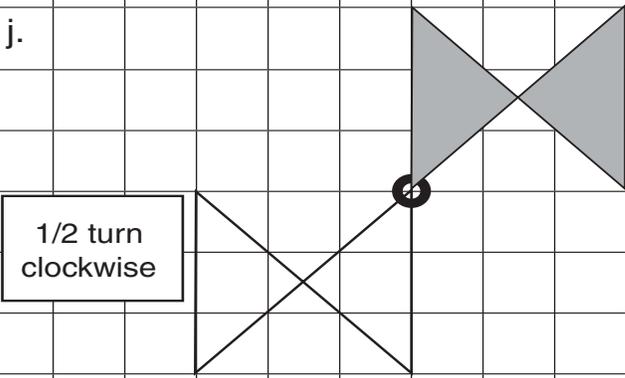


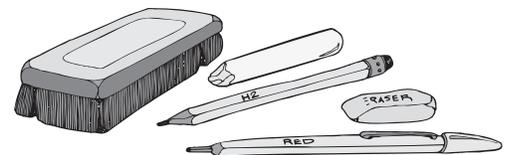
			
Starting View	1/4 turn clockwise	1/2 turn clockwise	3/4 turn clockwise
			
Starting View	1/4 turn counter clockwise	1/2 turn counter clockwise	3/4 turn counter clockwise

Questions

1. Follow the directions and draw a turn image of each of the following figures.

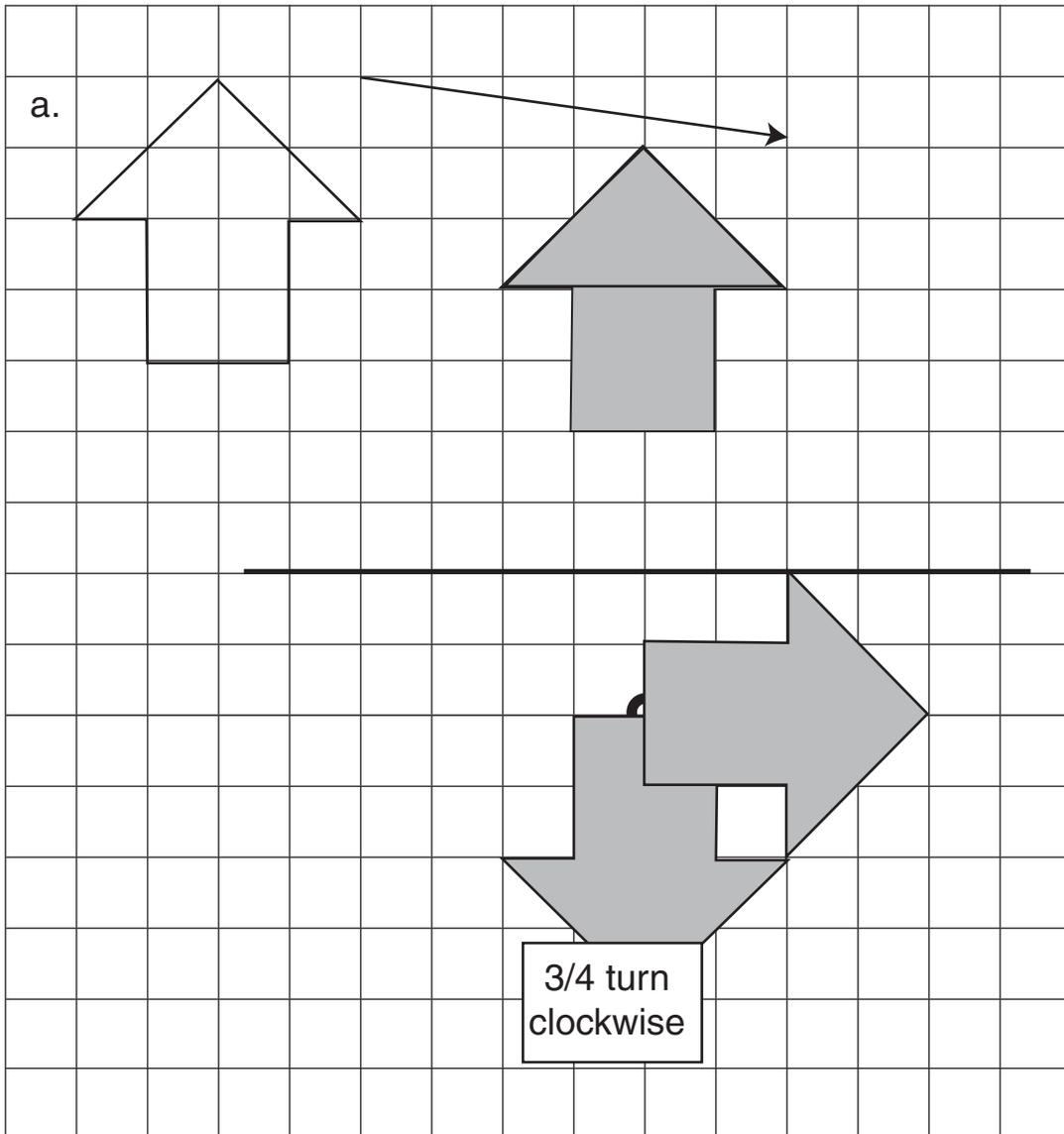
Check for accuracy

<p>f.</p> 	<p>g.</p> 
<p>h.</p> 	<p>i.</p> 
<p>j.</p> 	



Homework Assignment

Follow the directions in the order given to move the arrow around the grid: slide **first**, flip **second**, and turn **last**.



Self-Evaluation

Ask yourself some important questions. Write your answers in sentences for your teacher.

1. In this lesson, what part of your work was **excellent**?

2. In this lesson, what part of your work **needs improvement**?

3. If you want help for some of the work in this lesson, ask your teacher in this space.
