

Math Unit 10: Reflections and Symmetry

Study Guide

REFLECTIONS & SYMMETRY

- * **transparent mirror** (faces, ends, & recessed drawing edge)
 - * **preimage** (already there)
 - * **image** (when you look through the transparent mirror)
 - * **reflections** - a flipping motion that makes the image appear to be the "opposite"
 - * **line of reflection** - the line along the recessed edge of a transparent mirror.
 - * **symmetry / symmetric / symmetrical** - a figure that exactly matches with its image
 - * **line of symmetry** - when the line of reflection is in the middle of a picture or object (Regular polygons have the same number of lines of symmetry as its vertices or sides.)
 - * **turn symmetry** - shapes that look the same after they have been turned less than a full turn have rotation or turn symmetry
 - * **congruent** - figures that are exactly alike - the same size & shape
 - * **frieze pattern** - when a figure keeps its shape as it is moved in a pattern
- Types of patterns (rigid motions):
- reflections** (flip)
 - translations** (slides)
 - rotations** (rotate or turn)

POSITIVE & NEGATIVE NUMBERS

- * **credit** - money received or that you get (positive additions)
 - * **debit** - money you loose (negative additions)
 - * **positive numbers** - numbers greater than zero
 - * **negative numbers** - numbers that are less than zero
 - * **operations:** +, -, x, /
- **zero is not a positive or a negative number
- ****whole numbers** - the counting numbers with zero 0, 1, 2, 3, ...

Addition	Subtraction
positive + positive = positive Ex. $1 + 1 = 2$	positive - smaller positive = positive Ex. $10 - 5 = 5$
negative + negative = negative Ex. $-14 + (-10) = -24$	positive - larger positive = negative Ex. $25 - 100 = -75$
negative + positive = negative or positive Ex. $-11 + 24 = 13$ Ex. $-18 + 6 = -12$	positive - negative = positive Ex. $14 - (-5) = 19$
	negative - positive = negative Ex. $-6 - 4 = -10$
	negative - smaller negative = negative Ex. $-5 - (-3) = -2$
	negative - larger negative = positive Ex. $-5 - (-8) = 3$

****REMEMBER...** to subtract a positive and a negative number just change the operation symbol (subtraction symbol) to an addition symbol. Then change the symbol of the subtrahend to the opposite symbol (positive to negative or negative to positive) and add.

Ex: $12 - (-8) =$ Ex: $-14 - 6 =$
 $12 + 8 = 20$ $-14 + (-6) = -20$

Secure Goals

Student should be able to:

1. Draw shapes with no, one, two, or multiple lines of symmetry.
2. Identify a translation.
3. Identify a rotation.
4. Use a transparent mirror to draw the reflection of a preimage.
5. Use a transparent mirror to draw the other half of the figure across the line of symmetry.
6. Give fraction, decimal, and percent equivalents.
7. Add and subtract fractions.