The Well-Trained Mind Academy
Preparation for Pre-Algebra

Course Blackboard site: wtma.blackboard.com

Required Text(s) and Materials:

- *Mathematics Foundations: Well-Trained Mind Academy Edition.* Available through Math Mammoth: https://www.mathmammoth.com/special/WTM_mathematics_foundations.php
- *MathXL for School*. Student access provided by the Well-Trained Mind Academy.
- *RightStart™ Fractions Worksheets,* Hazelton, ND: Activities for Learning, Inc.
- *RightStart™ Multiplication Card Deck,* Hazelton, ND: Activities for Learning, Inc.
- *RightStart™ Fraction Card Deck,* Hazelton, ND: Activities for Learning, Inc.

Course Description:
Full-year course. Formerly Mathematics Foundations. This is designed as a course for students who have completed a K-6 math program, but have poor math skills or significant gaps in their math education. Therefore, because this is mainly a review course, some basic skills like measurement, time, and the metric system will not be covered. This course is designed to prepare students for upper middle school mathematics and science courses at the Well-Trained Mind Academy, including pre-algebra.

Preparation for Pre-Algebra includes a review of basic arithmetic skills, including operations, number theory, decimals, percents, integers, variables, the Cartesian plane, and basic geometry. Emphasis is given to mastering fractions. The course also includes brief introductions to radicals and exponents, statistics, and probability.

Students' parents, guardians, or their designees are expected to assist students in completing some assigned tasks, and are required to verify some assignment completion. Students must scan selected work and upload it into Blackboard.

Prerequisite Skills: Preparation for Pre-Algebra is designed as a review course. Please make sure your student completes and passes the pre-test before enrolling: Preparation for Pre-Algebra Pre-Test. If you have any questions about the appropriateness of this course for your student, email info@wtmacademy.com

- add and subtract 3 digit numbers with carrying and borrowing

$$\begin{array}{r} 3897 \\ +324 \\ \hline \end{array} \qquad \begin{array}{r} 3205 \\ -197 \\ \hline \end{array}$$

- multiply two-digits times three or more digits

$$\begin{array}{r} 527 \\ \times 23 \\ \hline \end{array}$$

- understand and use the concept of remainders
  $45 \div 7 = \_\_\_R\_\_\_$

- know what an equation is and be able to solve a simple equation
  $6x = 18$

- know what a decimal is and understand decimal place value to the thousands
  In 7.5465, in which place is the five?

- understand the concept of a fraction and solve for basic fractional quantities
  $\frac{1}{2} of\ 4 = ?$ $\frac{2}{3} + ? = 1$

- understand the concepts of area and perimeter
  A photo is 5 inches wide by 7 inches tall. What is its area? What is its perimeter?

- Identify prime numbers
  Which of these numbers is prime?
  $5, 32, 45, 23, 35$

MathXL for School:

- Daily homework and math drill assignments will be completed in MathXLforSchool.
- The Math Mammoth textbook and *RightStart™ Fractions Worksheets* will be essential for reference and completing other weekly course work.
- In order to safeguard student privacy, each student will be assigned a generic student account in MathXLforSchool. No personal or identifying information has been, or will be, shared with the MathXLforSchool system. Note that MathXLforSchool grades are not the course grade. MathXLforSchool is one tool used in this course.

Written Assignments:

- *Math Journal:* Students will write about their learning experience on a regular basis. 5% of final grade, total.
- *Weekly Discussion Questions*: Discussion questions will be drawn from the text. Each student must write a meaningful reply to the question by midnight, EST, Monday, and meaningfully respond to two other students' responses by midnight, EST, on Wednesday.

See the Assignment policies for more information about meaningful participation. 5% of final grade, total.

Quizzes and Tests:

- *Weekly Quizzes:* Students will complete weekly quizzes in MathXL. Students may scan their scratch work and upload it into Blackboard for partial credit. 12.5% of final grade, total.
- *Tests:* Students will complete problems drawn from previous material in MathXL. 12.5% of final grade, total.
- *Comprehensive Exams*: There will be two comprehensive exams in MathXL for School. Students must scan their written scratch work if partial credit is desired and upload it into Blackboard. 17.5% of final grade each.

Other Assignments/Requirements:

- *Homework*: Homework will consist of:
    - Daily MathXL concept practice
    - Daily Math Mammoth concept practice
    - Twice weekly MathXL fact drill
    - Twice weekly RightStart Fraction work
- Students will complete assignments chosen by the instructor. Students' parents, guardians, or their designees are expected to assist on many assignments, and are responsible for verifying task completion. 30% of final grade, total.

Grading breakdown:

Course Work	*Percentage*
Homework Problems	30
Weekly Quizzes	12.5
Tests	12.5
Discussion Questions	5
Math Journal	5
Comprehensive Final Exams—2	17.5 each (total 35%)
Total	100

- *Math Formatting*: The object of the course is mathematics, not technology. Therefore, while the use of LaTeX, MathType, Geogebra, and other software tools is encouraged, it is not required. A LaTeX editor is built into Blackboard for student use. At certain points, students may be expected to demonstrate use of a straightedge and compass, unless a student's documented exceptionality prevents such assignments. If students choose to hand-sketch and hand write assignments that do not require handwork (i.e., can be done with LaTeX, etc), easily legible handwriting is required. In addition, all assignments, whether created with software or drawn by hand, must be uploaded to Blackboard in digital format. Therefore, emailed or texted assignments will not be accepted.
- *Partial Credit/Showing Your Work*: Requirements vary by problem type. Students are not required to show their work for Homework and Weekly Quiz problems—however, if they do

not show their work, and get the problem wrong, they cannot get partial credit. Partial credit is only given for Homework and Weekly Quiz problems when all work is shown. Test problems drawn from the texts require that students show work in order to receive any credit.

Example Schedule:

Week	Assignment	Topic
0	Introduction	Orientation
1	DQs HW/Quiz	Place Value and Rounding, Arithmetic Operations, Introduction to Fractions, Naming Fractions
2	DQs HW/Quiz	Making One, Simplifying Fractions, Least Common Denominators (LCD), Sequences and Series
3	DQs HW/Quiz	Comparing Fractions, Making One Half, Converting Fractions to Decimals, Frequencies
4	DQs HW/Journal	Drawing Fractions, Fractions of a Dollar, Integers, Word Problems with Integers, Fractional probability
5	DQs HW/Quiz	Evaluating Expressions, Median, Mean, Probability with Replacement, Fractions in Time
6	DQs HW/Test	Order of Operations, Prime and Composite Numbers, Simplifying Fractions, Ruler Chart, Fraction Problems
7	DQs HW/Quiz	Equivalent Fractions, Least Common Denominators (LCD), Mixed Numbers
8	DQs HW/Journal	Simplifying Fractions, Whole Numbers and Fractions, Converting Decimals to Fractions, Adding and Subtracting Decimals, Sampling Methods
9	DQs HW/Quiz	Mixed Numbers to Improper Fractions, Percent, Percents and Decimals, Rational Numbers
10	DQs HW/Quiz	Improper to Mixed Numbers, Dividing Line, Adding and Subtracting Negatives, Square Roots, Squares: Area and Perimeter
11	DQs HW/Quiz	Order of Operations, Prime Factorization, Simplifying Fractions, Finding Factors
12	DQs HW/Test	Greatest Common Factors, Simplifying Fractions using GCF, Least Common Denominators (LCD), Volume of a Cube
13	DQs HW/Journal	Adding and Subtracting Fractions, Improper Fractions, Mixed Numbers
14	DQs HW/Quiz	Multiples in Common, Lowest Common Multiple, Percent, Adding and Subtracting Negatives, Absolute Value
15	DQs HW/Quiz	Adding and Subtracting Fractions, Multiplying and Dividing with Negatives, Exponents, Range of Data
16	DQs HW/Quiz	Multiplying and Dividing with Negatives, Exponents, Range of Data
17	DQs HW/Quiz	π , Perimeter and Area of Circles, Degrees

18	Midterm	**No lecture**
19	DQs HW/Quiz	Word Problems, Variables, Distributive Property, Fraction Multiplication
20	DQs HW/Quiz	Fraction Times a Fraction, Order of Operations, Prime and Composite Numbers, Simplifying Fractions
21	DQs HW/Quiz	Multiplying a Fraction by a Fraction, Reciprocals, Dividing by a Fraction
22	DQs HW/Journal	Fractions and Percents, Exponents, Quadrants, Solving Equations, Volume of a Cuboid
23	DQs HW/Quiz	Range of Data, Divisibility Tests, Prime Factorization,
24	DQs HW/Test	Simplifying Fractions, Least Common Denominators (LCD), Adding and Subtracting Fractions
25	DQs HW/Quiz	Multiplying a Fraction by a Whole Number, Dividing by a Fraction, Mixed Numbers
26	DQs HW/Journal	Multiplying Decimals, Percent, Graphing on the Coordinate Plane
27	DQs HW/Quiz	Area, Rectangles: Area and Perimeter, Simplifying Fractions, Least Common Denominators (LCD)
28	DQs HW/Test	Multiplying a Fraction by a Whole Number, Dividing by a Fraction, Mixed Numbers
29	DQs HW/Quiz	Multiplying Decimals, Percent, Graphing on the Coordinate Plane
30	DQs HW/Journal	Area, Rectangles: Area and Perimeter, Simplifying Fractions, Least Common Denominator (LCD)
31	DQs HW/Quiz	Multiplying a Fraction by a Whole Number, Dividing by a Fraction, Mixed Numbers
32	DQs HW/Test	Multiplying and Dividing with Decimals, Rates and Ratios, Unit Rates
33	DQs HW/Quiz	Percent, Simple Interest, Multiplying and Dividing with Negatives
34	DQs HW/Quiz	Square Roots, Squares: Area and Perimeter, Percent increase and decrease
35	Final	**No lecture**

Well-Trained Mind Academy
Diagnostic Test
For placement in Preparation for Pre-Algebra

The purpose of this exam is to discover whether the student has the prerequisite skills for entry into the Preparation for Pre-Algebra course.

Parents are not to assist the student in any way, with the exception of standard testing accommodations for those students with a diagnosed learning issue. Such accommodations may include designated readers, oral instructions, verbal responses, scribed responses, audio recordings of responses, typed responses, on-task/focusing prompts, etc. If any accommodations have been used, please inform the instructor. Audio, large-print, and Braille versions of this exam are available upon request.

The exam is intended to be given using pencil and paper.

INSTRUCTIONS:

- The exam is untimed and has 23 questions.
- You may not use any calculator, notes, or other assistance on this exam.
- Please write neatly. Illegible answers will be assumed to be incorrect.

The answer key is found on page 3. Students who complete the test and get at least 18 of the 23 questions correct are prepared to enter Preparation for Pre-Algebra.

$$\begin{array}{r} 30 \\ +\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 23 \\ +\ 7 \\ \hline \end{array} \qquad \begin{array}{r} 123 \\ +\ 17 \\ \hline \end{array} \qquad \begin{array}{r} 895 \\ +\ 746 \\ \hline \end{array} \qquad \begin{array}{r} 59 \\ -\ 7 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ -\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 35 \\ -\ 17 \\ \hline \end{array} \qquad \begin{array}{r} 245 \\ -\ 29 \\ \hline \end{array} \qquad \begin{array}{r} 407 \\ -\ 258 \\ \hline \end{array} \qquad \begin{array}{r} 21 \\ \times\ 5 \\ \hline \end{array}$$

$$\begin{array}{r} 525 \\ \times\ 91 \\ \hline \end{array} \qquad 4\overline{)36} \qquad 6\overline{)53} \qquad 21\overline{)106}$$

$3x = 18$

$x = \_\_\_$

$7x = 23$

$x = \_\_\_$

$\frac{1}{3}$ *of* $9 = \_\_\_$

$\frac{1}{2}$ *of* $7 = \_\_\_$

$\frac{3}{5} + \_\_\_ = 1$

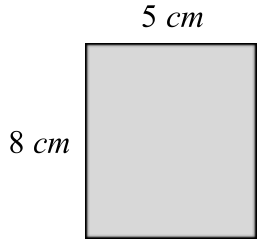
In 7.5461, in which place is the six?

_____

What is the area of the figure?

_____

What is the perimeter of the figure? _____



Circle the prime numbers: 1 2 3 4 5 6 7 8 9 10 11 12

Answer key:

39, 30, 140, 1641, 52

27, 18, 216, 149, 105

47775, 9, 8 R5, 5 R1, 6

$\frac{23}{7},\ 3,\ \frac{7}{2}$ *or* $3\frac{1}{2},\ \frac{2}{5}$

thousandths, area = 40, perimeter = 26

2, 3, 5, 7, 11