

Specific Administration Instructions

The following administration instructions apply when administering the TransMath placement tests. There are instructions that apply to all three placement tests as well as specific instructions for unique items found on individual tests. To administer the placement test, each student needs two sharpened No. 2 pencils and one small blank sheet of scratch paper.

Step 1

Distribute one TransMath placement test to each student. Have students turn to the first page of the assessment:

Developing Number Sense: Page 1

Making Sense of Rational Numbers: Page 7

Understanding Algebraic Expressions: Page 13

Hold up a test booklet to show students the correct page. Check that all students have opened their booklets to the correct page.

Step 2

When everyone has found the page:

Say:

Today you will take the TransMath placement test. Read the directions carefully for each part. You will be asked to answer different kinds of questions.

In some parts of the test, you are asked to solve problems. You can use scratch paper if needed but be sure to write your answer on the test paper and not just on the scratch paper when you compute an answer.

In other parts of the test, you are asked to answer multiple-choice questions. Read the questions and choices very carefully before making your selection. Once you decide on your answer, write the letter of your selection on the line following the question.

In some parts of the test, you are asked to write a short answer. This might mean filling in numbers or words in a table or on a blank line.

The following instructions are assessment specific. Read only the instruction(s) that apply to the placement assessment you are administering.

If you are administering the *Developing Number Sense* assessment,

Say:

In some parts of the test, you are asked to circle the correct answer. Read the problem carefully to determine if there is just one correct answer to be circled or if there might be more than one correct answer you need to circle.

If you are administering the *Making Sense of Rational Numbers* assessment,

Say:

In one part of the test, you are asked to mark a location on a number line. Carefully make an X on the correct location. There should be just one X on the number line. Make the X dark enough to be identified clearly.

In one part of the test, you are asked to place the decimal point in an answer. There should be just one decimal point in each answer. Make sure your decimal point is dark enough to be identified clearly.

If you are administering the *Understanding Algebraic Expressions* assessment,

Say:

In one part of the test, you are asked to graph inequalities. Be sure to make it clear whether your circle is a solid circle or an open circle. Draw the circle dark enough to be identified clearly.

In one part of the test, you are asked to fill in an x/y table. Be sure to write the corresponding y value for each x value in the table.

In one part of the test, you are asked to draw a graph of a linear equation. Draw the graph dark enough on the grid to be identified clearly.

Scoring the TransMath Placement Tests

Score the test using the answer key beginning on page 10. The raw score is the total number of items answered correctly. Compute the percentage by dividing the raw score into the total number of possible points, which is 35 for each test. The passing mark for each test is **80 percent**.

To assist you further in understanding student performance on the placement tests and to help identify specific deficit areas, the following breakdown of test items is provided for each of the three assessments.

Placement Assessment • *Developing Number Sense*

Content

This placement test is designed primarily to assess whole-number skills (operations and number theory). Material is also included to assess knowledge of the concept of fractions and addition/subtraction of fractions. The remaining material on the test comes from the secondary-strand geometry, measurement, data analysis, and statistics. The breakdown of items is as follows:

Part 1—Whole-number operations with multidigit numbers

- Addition, subtraction, multiplication, and division of whole numbers

Part 2—Number Sense

- The rounding of whole numbers and approximating of sums and products

Part 3—Number Theory

- Factors, greatest common factor, multiples, least common multiple, prime and composite numbers

Part 4—Fractions

- Concept of fair shares, equivalent fractions, and simplification of fractions
- Addition and subtraction of fractions

Part 5—Geometry and Measurement

- Symmetry, congruence, similarity, area, perimeter, geometric transformations, and metric units of measurement

Part 6—Data and Statistics

- Statistical landmarks, measures of central tendency, range, extremes in data, stem-and-leaf plots, bar graphs, and line plots

Percentages of Coverage for Placement Assessment 1

Whole-Number Skills (Operations, Number Sense, and Number Theory)

These items make up about **55 percent** of the test.

Concepts Involving Fractions

These items make up about **15 percent** of the test.

Secondary Topics

These items make up about **30 percent** of the test.

Placement Based on Student Performance

A score of **80 percent** is needed to pass the test. This means students pass Placement Assessment 1 if they are proficient in whole-number skills, and they have some general knowledge of fractions or other traditional secondary topics. **Students should be placed in *Developing Number Sense* if they score below 80 percent on Placement Assessment 1.**

Placement Assessment 2 • *Making Sense of Rational Numbers*

Content

This placement test is primarily designed to assess rational number skills (fractions, decimal numbers, and percents). Other number skills covered on the test are scientific notation and the concept of integers and addition/subtraction with integers. Material is also included to assess the secondary topics of geometry, measurement, data analysis, and probability. The breakdown of items is as follows:

Part 1—Rational Number Operations

- Addition, subtraction, multiplication, and division with rational numbers—fractions, mixed numbers, and decimals

Part 2—Number Sense (Equivalency)

- Equivalent forms of rational numbers—fractions, decimals, and percents

Part 3—Number Sense (Comparing and Ordering)

- The location of rational numbers on a number line

Part 4—Number Sense (Decimals)

- Determining the location of the decimal point in products and quotients involving decimal numbers

Part 5—Scientific Notation

- The conversion of scientific notation to standard notation
- The conversion of standard notation to scientific notation

Part 6—Concept of Integers

- The identification of opposites
- The ordering of negative integers

Part 7—Integer Operations

- Addition, subtraction, multiplication, and division of integers

Part 8—Data and Probability

- Tables, circle graphs, and bar graphs
- Likelihood of events—spinners and dice

Part 9—Geometry and Measurement

- Measurement topics of area and angles
- Geometry topics of types of angles, polygons, and geometric transformations on a coordinate grid

Percentages of Coverage for Placement Assessment 2

Rational number skills

These items make up about **55 percent** of the test.

Concepts Involving Integers

These items make up about **15 percent** of the test.

Secondary Topics

These items make up about **30 percent** of the test.

Placement Based on Student Performance

A score of **80%** is needed to pass the test. This means that students pass Placement Assessment 2 if they have strong rational numbers skills and they have some general knowledge of integers or other traditional secondary topics. **Students should be placed in *Making Sense of Rational Numbers* if they score below 80 percent on Placement Assessment 2 and above 80 percent on the Placement Assessment 1.**

Placement Assessment 3 • *Understanding Algebraic Expressions*

Content

This placement test is mainly designed to assess traditional prealgebra topics. Rational number skills are also included on the test because they are an integral part of students' success in algebra. Material is also included to assess the secondary topics of geometry, measurement, data analysis, and probability. The breakdown of items is as follows:

Part 1—Rational Number Operations

- Addition, subtraction, multiplication, and division with rational numbers—fractions, mixed numbers, and decimal numbers

Part 2—Variables and Translations

- The use of variables to generalize

Part 3—Inequalities

- The graphing of a number line
- Writing an inequality to match a graph on a number line

Part 4—Order of Operations

- The evaluation of numeric expressions using order of operations

Part 5—Properties

- Solving algebraic equations using commutative property, associative property, properties of equality, inverse properties (opposites and reciprocals), and identity properties

Part 6—Functions

- The completion of an x/y table of values for a function (symbolic to tabular)
- The graphing of a linear function (symbolic to graphic)
- The representation of a function using words (symbolic to verbal)

Part 7—Proportions, Rates, and Ratios

- The identification of proportional relationships in pattern cards
- The finding of the unit rate
- The understanding of part-to-part relationships represented by ratios

Part 8—Geometry and Measurement

- Properties of three-dimensional shapes and the measuring of volume and surface area
- Properties of angles, e.g., finding missing angle measures using the properties of vertical angles

- Properties of right angles, e.g., using the Pythagorean theorem to find a missing side and interpolating square roots when applying the Pythagorean theorem

Part 9—Data and Statistics

- The analysis of statistics in box-and-whisker plots
- The analysis of scatter plots
- The identification of types of relationships in data—direct relationships versus indirect relationships

Percentages of Coverage for Placement Assessment 3

Prealgebra skills

This material makes up approximately **60 percent** of the test.

Concepts Involving Rational Numbers

This material makes up about **20 percent** of the test.

Secondary Topics

These items make up about **20 percent** of the test.

Placement Based on Student Performance

A score of **80 percent** is needed to pass the test. Students pass this test if they have a solid foundation in prealgebra along with proficiency in rational number operations. These skills are considered essential prerequisites for entry into a beginning level algebra course. **Students should be placed in *Understanding Algebraic Expressions* if they score below 80 percent on Placement 3 and above 80 percent on Placement Assessment 2.**

Using Test Scores for Placement Decisions

Once the test is administered and scored, and the test information is recorded, teachers use decision criteria—in combination with other external assessment tools and teacher judgment based on student needs—for placing students at one of the three entry points in the curriculum.

In addition to the results of the placement tests, teacher judgment based on students' needs should contribute to the placement decisions. Standardized test results and other pertinent external assessments, portfolios of student work, and/or teacher recommendations can also be used to summarize students' learning needs.

Answer Key • Developing Number Sense

Placement Assessment • Developing Number Sense

Name _____ Date _____

Part 1

Solve.

1. $\begin{array}{r} 43 \\ + 78 \\ \hline 121 \end{array}$
2. $\begin{array}{r} 71 \\ - 38 \\ \hline 33 \end{array}$
3. $\begin{array}{r} 207 \\ + 194 \\ \hline 401 \end{array}$
4. $\begin{array}{r} 307 \\ - 119 \\ \hline 188 \end{array}$
5. $\begin{array}{r} 39 \\ \times 9 \\ \hline 351 \end{array}$
6. $\begin{array}{r} 52 \\ \times 17 \\ \hline 884 \end{array}$
7. $\begin{array}{r} 634 \\ \times 8 \\ \hline 5,072 \end{array}$
8. $\begin{array}{r} 337 \\ \times 59 \\ \hline 1,904 \end{array}$
9. $6 \overline{)46}$
10. $9 \overline{)738}$

Part 2

Round the numbers, then give an approximate answer.

11. $\begin{array}{r} 545 \\ + 322 \\ \hline 875 \end{array}$
12. $\begin{array}{r} 598 \\ \times 6 \\ \hline 3,600 \end{array}$

Part 3

Answer the questions about factors and multiples.

13. What are the factors of 20? 1, 2, 4, 5, 10, 20
14. What is the greatest common factor (GCF) for 24 and 36? 12
15. List the first five multiples of 8. 8, 16, 24, 32, 40
16. What is the least common multiple (LCM) of 6 and 9? 18
17. Circle the prime numbers in the list.
2 3 4 6 9 11 15 17 29 31 45 47





©2010 Sapient-Met Education Services, All rights reserved.

Student Placement Test 1

Placement Assessment • Developing Number Sense





Part 4

Answer the questions about fractions.

18. Which of the models is divided into four shares? c
(a)  (b)  (c)  (d) 
19. Add $\frac{2}{3} + \frac{1}{6}$. $\frac{5}{6}$
20. Subtract $\frac{4}{9} - \frac{1}{9}$. $\frac{3}{9}$
21. Write an equivalent fraction for $\frac{2}{3}$. $\frac{4}{6}$ Answers may vary. Sample answer.
22. Simplify the fraction $\frac{6}{8}$. $\frac{3}{4}$

Part 5

Answer the questions about geometry and measurement.

23. Which picture shows a line of symmetry drawn correctly? c
(a)  (b)  (c) 
24. The tangram shapes represent b

(a) similar shapes (b) congruent shapes
(c) convex shapes (d) quadrilaterals

2 Student Placement Test

©2010 Sapient-Met Education Services, All rights reserved.

Placement Assessment • Developing Number Sense

Name _____ Date _____

25. If the following two shapes have the same area, what explains the fact that the measurements are different? b



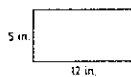
Area = 16 units²



Area = 4 units²

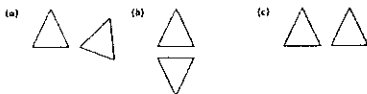
- (a) One is a square and one is a rectangle.
- (b) The unit sizes are different.
- (c) The sides are different lengths.

26. Find the area and perimeter of the rectangle.



Area 60 inches² Perimeter 34 inches

27. Which of the following shows a slide (translation) of the triangle? c



28. What metric unit of measurement would you use to measure the cover of your math book? b

- (a) meters
- (b) centimeters
- (c) kilometers

©2010 Sapient-Met Education Services, All rights reserved.

Student Placement Test 3

Placement Assessment • Developing Number Sense

Part 6

Answer the questions about data and statistics.

29. The median of the following set of data is 21
12 14 15 16 17 19 21 22 23 30 35 37 44
30. The range of a set of data is a
(a) the difference between the maximum and the minimum
(b) the difference between the median and the mean
(c) the sum of the maximum and the mode
31. Circle the outlier in the following set of data.
6 4 5 3 50 5 4 3 6 5 4 6
32. What is the maximum in the following stem-and-leaf plot? 72

3	2	3	4	5	6	7
4	1	1	1	1	2	
5	2	3	4	5	5	
6	1	2	2			
7	1	2				

33. The mean of the following set of data is b

- 1 3 4 8 9
- (a) 4
- (b) 5
- (c) 6

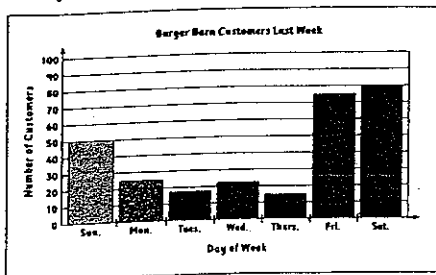
4 Student Placement Test

©2010 Sapient-Met Education Services, All rights reserved.

Placement Assessment • Developing Number Sense

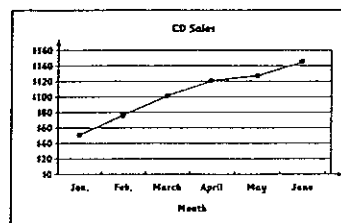
Name _____ Date _____

34. How many more customers went to Burger Barn on Saturday than on Sunday? 30



Placement Assessment • Developing Number Sense

35. Between which two months did CD sales change the least?
April and May



Answer Key • Making Sense of Rational Numbers

Placement Assessment • Making Sense of Rational Numbers

Name _____ Date _____

Part 1

Solve.

1. $\frac{3}{4} + \frac{1}{2} = 1\frac{1}{4}$ 2. $\frac{5}{6} - \frac{1}{6} = \frac{2}{3}$ 3. $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$
 4. $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$ 5. $9\frac{2}{3} - 7\frac{1}{3} = 2\frac{1}{3}$ 6. $1\frac{1}{2} + 2\frac{3}{4} = 4\frac{1}{4}$
 7. $22.7 + 39.18 = 61.88$ 8. $179.01 - 55.83 = 123.18$

Part 2

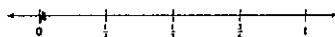
Fill in the table with the equivalent fractions, decimal numbers, or percents in each row.

9.	$\frac{5}{10}$	0.8	80%
10.	$\frac{1}{4}$	0.25	25%
11.	$\frac{3}{4}$.75	75%
12.	$\frac{1}{100}$	0.01	1%

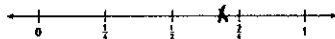
Part 3

Find the approximate location on the number line.

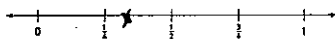
13. Put an X on the number line below to show the approximate location of 0.01.



14. Put an X on the number line below to show the approximate location of $\frac{2}{3}$.



15. Put an X on the number line below to show the approximate location of 30%.



©2010 Super Mind Educational Services. All rights reserved.

Student Placement Test 7

Placement Assessment • Making Sense of Rational Numbers

Part 4

Place the decimal point in the correct location in each answer.

16. Where should the decimal point be in this answer?
 $2.2 \cdot 0.45 = 990.990$
 17. Where should the decimal point be in this answer?
 $44.2 \div 8.5 = 520.520$

Part 5

Write the numbers using scientific notation.

18. Write 2.5×10^2 in standard form. 250
 19. The number 3,700 is written in scientific notation as 3.7×10^3

Part 6

Answer the questions about positive and negative integers.

20. -5 and 5 are called b.
 (a) reciprocals
 (b) opposites
 (c) irrational numbers
 21. Which is greater, -9 or -10? -9

Part 7

Solve.

22. $-2 + -3 = -5$ 23. $-5 - -3 = -2$
 24. $9 \cdot -4 = -36$ 25. $-72 \div -9 = 8$

8 Student Placement Test

©2010 Super Mind Educational Services. All rights reserved.

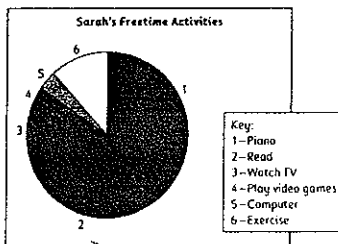
Placement Assessment • Making Sense of Rational Numbers

Name _____ Date _____

Part 6

Answer the questions about data and probability.

26. About what percent of her free time does Sarah practice piano? 40%



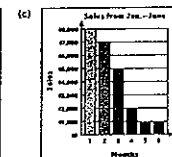
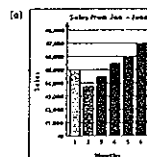
©2010 Super Mind Educational Services. All rights reserved.

Student Placement Test 9

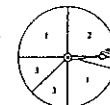
Placement Assessment • Making Sense of Rational Numbers

27. Select the graph that best matches the data in the table. a

Jan.	\$5,000
Feb.	\$3,700
March	\$4,600
April	\$5,500
May	\$6,000
June	\$7,000



28. When you spin this spinner, you have the highest probability of landing on which number? 2
 29. Which event is the most likely to happen when rolling two six-sided dice? b
 (a) You will roll a total of 2.
 (b) You will roll a total of 7.
 (c) You will roll a total of 12.



10 Student Placement Test

©2010 Super Mind Educational Services. All rights reserved.

Name _____ Date _____

Part 8

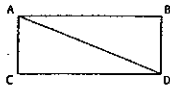
Answer the questions about geometry and measurement.

30. Which benchmark angle is closest to this angle? a



(a) 90° (b) 45° (c) 180°

31. The area of the rectangle ABCD below is 18 units².
What is the area of triangle ABD? 9 units²

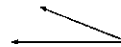


32. Which shape is not a quadrilateral? d



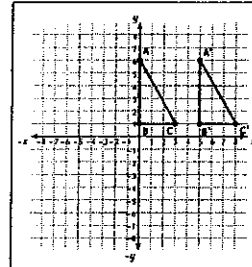
Name _____ Date _____

33. The following angle is what type of angle? a



(a) acute
(b) obtuse
(c) right

Use the following graph to answer questions 34 and 35.



34. Which of the vertices of triangle ABC has the coordinates (3, 1)? C

35. What are the coordinates of the vertex C' on the translated triangle? (8, 1)



Answer Key • Understanding Algebraic Expressions

Placement Assessment • Understanding Algebraic Expressions

Name _____ Date _____

Part 1

Solve.

1. $3.25 + 7.8$ 11.05
2. $5.78 - 5$ 28.9
3. $\frac{2}{3} + \frac{5}{6}$ $1\frac{7}{6}$
4. $\frac{4}{9} - \frac{1}{3}$ $\frac{1}{9}$
5. $-17 - 59$ -76
6. $21.7 \div 0.7$ 31
7. $-8 - -9$ 72
8. $-\frac{5}{6} - \frac{2}{3}$ $-\frac{5}{6}$

Part 2

Select the general pattern that matches the group of specific cases.

9. $5 - 0 = 0$
 $-3 - 0 = 0$
 $\frac{1}{2} - 0 = 0$
 The general pattern is b.
 (a) $m - 0 = m$
 (b) $m - 0 = 0$
 (c) $5 - m = m$
10. $3 + 7 = 7 + 3$
 $\frac{1}{5} + \frac{1}{2} = \frac{1}{2} + \frac{1}{5}$
 $-5 + -7 = -7 + -5$
 The general pattern is a.
 (a) $c + d = d + c$
 (b) $3 + d = d + 3$
 (c) $-c + d = c + -d$

©2010 Sapia West Educational Services. All rights reserved.

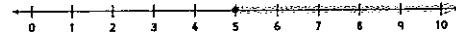
Student Placement Test 13

Placement Assessment • Understanding Algebraic Expressions

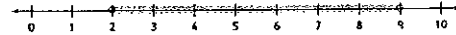
Part 3

Answer the questions about inequalities.

11. Show the inequality $x \geq 5$ on the number line.

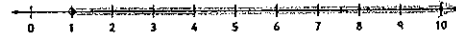


12. Show the double inequality $2 < y < 9$ on the number line.



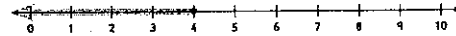
13. Write the equality shown on the number line using the variable w .

The inequality is $w > 1$



14. Write the equality shown on the number line using the variable z .

The inequality is $z \leq 4$



Part 4

Solve using order of operations.

15. $3 + (2 - 1) - 2 \cdot 9$ 22
16. $5 - 3 + 7 - 8 + 2$ 18
17. $5^2 - (3 + -7) - 2$ 17

Part 5

Use properties to solve.

18. $3x + 7 + -2x = 10 + 2x - 9$ $x = 6$
19. $4(y + 2) = 3y + 7$ $y = -1$

14 Student Placement Test

©2010 Sapia West Educational Services. All rights reserved.

Placement Assessment • Understanding Algebraic Expressions

Name _____ Date _____

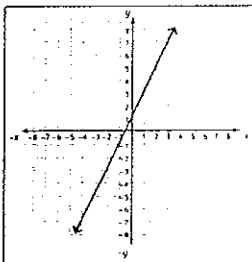
Part 6

Answer the questions about functions.

20. Complete the x/y table for the function $y = 2x + 1$.

-2	-3
-1	-1
0	1
1	3
2	5

21. Graph the function $y = 2x + 1$.



22. Tell the rule for the function $y = 2x$

2	4
3	6
-2	-4
-1	-2

©2010 Sapia West Educational Services. All rights reserved.

Student Placement Test 15

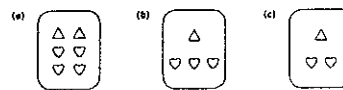
Placement Assessment • Understanding Algebraic Expressions

23. Which of the word problems is solved by $y = 3x$? b
 (a) $m - 0 = m$
 (b) What is the population of my town if it is 3 times larger than your town?
 (c) How many cookies did you sell if you sold 3 more boxes than anyone else?

Part 7

Answer the questions about proportions, rates, and ratios.

24. What two cards show a proportional relationship? a and c



25. Select the correct proportion and equation for solving this problem: If soup at the grocery store costs \$4.00 for 8 cans, what is the price for just one can of soup? $\frac{6}{8}$
 (a) $\frac{6}{8} \rightarrow 4 = 8x$ (b) $\frac{4}{8} = \frac{1}{x} \rightarrow 4x = 8$ (c) $\frac{1}{4} = \frac{8}{x} \rightarrow x = 32$
26. There are 17 girls in Mrs. Tobin's class. There are a total of 28 students in the class. What is the ratio of boys to girls? 11 : 17

Part 8

Answer the questions about geometry and measurement.

27. Compute the volume of the cube. 64 square cm

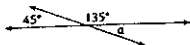


16 Student Placement Test

©2010 Sapia West Educational Services. All rights reserved.

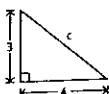
Name _____ Date _____

28. In the diagram, what is the measure of angle a ? 45°



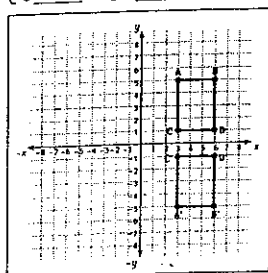
29. What number is closest to $\sqrt{37}$? b
 (a) 35 (b) 6 (c) 3.7

30. Use the Pythagorean theorem to find the measure of side c . 5



31. Rectangle ABCD has been reflected over the x -axis. What are the coordinates of the vertices of the image?

$A' = (3, -5)$ $B' = (6, -5)$
 $C' = (3, -1)$ $D' = (6, -1)$



32. How many faces does a rectangular prism have? 6



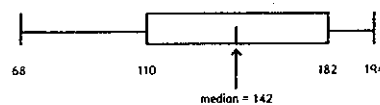
33. The surface area of a shape is c
 (a) the length times the width
 (b) the same as the volume
 (c) the sum of the areas of the faces

Part 9

Answer the questions about data and statistics.

34. What is the minimum of the box-and-whisker plot? 68

What is the maximum? 194



35. The relationship shown in this graph is called an indirect relationship because a

- (a) as one variable increases (driving speed), the other variable decreases (time to get there).
 (b) as one variable increases (driving speed), the other variable stays the same (time to get there).
 (c) as one variable decreases (driving speed), the other variable decreases (time to get there).

