

Placement Test Level (5) – Introduction

Math Lessons for a Living Education teaches math in a unique way—these placement tests will guide you in determining the best level in which to place your student.

Each placement test contains the skills and concepts your student must know and understand **in order to enter that level**. These are the prerequisite skills your child must understand in order to begin each level the test is for.

As your student works through these tests, make sure they understand:

- **How** each process is performed
- **Why** each process works

As your student completes each problem, ask them to **show** or **tell** you what they are doing and why they are doing it. Future success in mathematics relies upon your student understanding both the why and how of math.

Example placement scenarios

If your student can . . .

- Easily pass the test for Level 3 and understands both why and how they utilize those mathematical concepts, but struggles in the Level 4 test, your student is ready to begin level 3.
- If your student can pass the test for Level 5—but cannot show or tell you how concepts work (they know how to “fill in the blanks”), your student should begin level 4 in order to fill in learning gaps and create a true understanding of the concepts.
- If your student can pass the test for Level 4, but has one or two learning gaps (they are still a little shaky on a topic or two), you may evaluate the topics covered in both Level 3 & 4 and use your discretion in placing them. We would recommend working through level 3 at an accelerated pace; however, you may choose to place your student in level 4 and fill in learning gaps together.

Level 5 Placement Test

This placement test assesses your student's readiness to begin *Math Lessons for a Living Education Level 5*. Please discuss any missed problems with the student in order to understand the reason that he or she missed them. Instructions for grading are at the beginning of each section. **If your student completes this test and understands the concepts, they are prepared to begin *Math Lessons for a Living Education Level 5*.**

Section one: (The student should make no more than 2 mistakes on each of these points.)

Point 1: Add and Subtract.

$$\begin{array}{r} 289,591 \\ 429,398 \\ + 129,510 \\ \hline \end{array}$$

$$\begin{array}{r} 87,109,792 \\ + 1,349,029 \\ \hline \end{array}$$

$$\begin{array}{r} 890,573 \\ + 449,977 \\ \hline \end{array}$$

$$\begin{array}{r} 23,369,219 \\ - 57,259 \\ \hline \end{array}$$

$$\begin{array}{r} 566,773 \\ - 233,783 \\ \hline \end{array}$$

Point 2: Multiply

$$\begin{array}{r} 45 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 85 \\ \times 41 \\ \hline \end{array}$$

$$\begin{array}{r} 93 \\ \times 55 \\ \hline \end{array}$$

$$\begin{array}{r} 72 \\ \times 29 \\ \hline \end{array}$$

$$\begin{array}{r} 25 \\ \times 12 \\ \hline \end{array}$$

Divide.

$$4 \overline{) 9}$$

$$3 \overline{) 8}$$

$$5 \overline{) 6}$$

Point 3: Word Problems

The toy shop had 2,872 boomerangs in stock for the Christmas sale. After the sale, there were 1,988 boomerangs still in stock. The store decided to place half of the boomerangs on the clearance shelves, and donate the other half to a missions organization. How many boomerangs were donated to the missions organization? When the boomerangs were delivered to the missions organization, they were equally packaged in two large boxes. How many were in each box? When the workers at the organization opened one of the boxes, they found that a dozen boomerangs had been damaged in the shipment. How many boomerangs were undamaged in that box?

Point 4: Add and subtract these fractions.

$$\frac{3}{7} + \frac{2}{7} =$$

$$2\frac{2}{5} + 1\frac{1}{5} =$$

$$3\frac{5}{9} + 2\frac{1}{9} =$$

$$\frac{3}{11} + \frac{6}{11} =$$

$$6\frac{2}{3} - 4\frac{1}{3} =$$

$$\frac{5}{12} - \frac{4}{12} =$$

$$\frac{8}{13} - \frac{5}{13} =$$

$$11\frac{9}{10} - 8\frac{3}{10} =$$

Section two: (The student should make no more than 2 mistakes on each of these points.)

Point 1: Multiply top and bottom of each these fractions by 3 to find equivalent fractions.

$$\frac{2}{5} = \underline{\hspace{2cm}}$$

$$\frac{1}{3} = \underline{\hspace{2cm}}$$

$$\frac{5}{8} = \underline{\hspace{2cm}}$$

$$\frac{4}{7} = \underline{\hspace{2cm}}$$

Point 2: Find equivalent fractions by dividing each fraction by 4.

$$\frac{4}{12} = \underline{\hspace{2cm}}$$

$$\frac{32}{40} = \underline{\hspace{2cm}}$$

$$\frac{20}{28} = \underline{\hspace{2cm}}$$

$$\frac{40}{48} = \underline{\hspace{2cm}}$$

$$\frac{12}{36} = \underline{\hspace{2cm}}$$

$$\frac{16}{24} = \underline{\hspace{2cm}}$$

Level 5 Placement Solutions

Instructions for grading are found at the beginning of each section. **If your student understands all the concepts on the Level 5 Placement Test, they are ready to begin *Math Lessons for a Living Education Level 5*.** Please do not place an unprepared student in this book, as it will only frustrate them and inhibit them from learning.

Section one: (The student should make no more than 2 mistakes on each of these points.)

Point 1: Add and Subtract.

$$\begin{array}{r} \overset{1}{2} \overset{1}{1} \\ 289,591 \\ + 429,398 \\ + 129,510 \\ \hline 848,499 \end{array}$$

$$\begin{array}{r} \overset{1}{8} \overset{1}{7}, \overset{1}{1} \overset{1}{0} \overset{1}{9}, \overset{1}{7} \overset{1}{9} \overset{1}{2} \\ + 1,349,029 \\ \hline 88,458,821 \end{array}$$

$$\begin{array}{r} \overset{1}{8} \overset{1}{9} \overset{1}{0}, \overset{1}{5} \overset{1}{7} \overset{1}{3} \\ + 449,977 \\ \hline 1,340,550 \end{array}$$

$$\begin{array}{r} \overset{8}{2} \overset{11}{3} \overset{11}{6} \overset{11}{9}, \overset{11}{2} \overset{11}{1} \overset{11}{9} \\ - 57,259 \\ \hline 23,311,960 \end{array}$$

$$\begin{array}{r} \overset{5}{5} \overset{16}{6} \overset{16}{6}, \overset{16}{7} \overset{16}{7} \overset{16}{3} \\ - 233,783 \\ \hline 332,990 \end{array}$$

Point 2: Multiply

$$\begin{array}{r} \overset{1}{4} \overset{1}{5} \\ \times 33 \\ \hline 135 \\ + 1350 \\ \hline 1,485 \end{array}$$

$$\begin{array}{r} \overset{2}{8} \overset{2}{5} \\ \times 41 \\ \hline 85 \\ + 3400 \\ \hline 3,485 \end{array}$$

$$\begin{array}{r} \overset{1}{9} \overset{1}{3} \\ \times 55 \\ \hline 465 \\ + 4650 \\ \hline 5,115 \end{array}$$

$$\begin{array}{r} \overset{1}{7} \overset{1}{2} \\ \times 29 \\ \hline 648 \\ + 1440 \\ \hline 2,088 \end{array}$$

$$\begin{array}{r} \overset{1}{2} \overset{1}{5} \\ \times 12 \\ \hline 50 \\ + 250 \\ \hline 300 \end{array}$$

Divide.

$$4 \overline{) 9} \overset{2 \text{ r. } 1}{} \\ \underline{-8} \\ 1$$

$$3 \overline{) 8} \overset{2 \text{ r. } 2}{} \\ \underline{-6} \\ 2$$

$$5 \overline{) 6} \overset{1 \text{ r. } 1}{} \\ \underline{-5} \\ 1$$

Point 3: Word Problems

The toy shop had 2,872 boomerangs in stock for the Christmas sale. After the sale, there were 1,988 boomerangs still in stock. The store decided to place half of the boomerangs on the clearance shelves, and donate the other half to a missions organization. How many boomerangs were donated to the missions organization? When the boomerangs were delivered to the missions organization, they were equally packaged in two large boxes. How many were in each box? When the workers at the organization opened one of the boxes, they found that a dozen boomerangs had been damaged in the shipment. How many boomerangs were undamaged in that box?

$$1,988 \div 2 = 994 \text{ donated to missions}$$

$$994 \div 2 = 497 \text{ in each box} / 497 - 12 = 485 \text{ undamaged}$$

Point 4: Add and subtract these fractions.

$$\frac{3}{7} + \frac{2}{7} = \frac{5}{7}$$

$$2\frac{2}{5} + 1\frac{1}{5} = 3\frac{3}{5}$$

$$3\frac{5}{9} + 2\frac{1}{9} = 5\frac{6}{9}$$

$$\frac{3}{11} + \frac{6}{11} = \frac{9}{11}$$

$$6\frac{2}{3} - 4\frac{1}{3} = 2\frac{1}{3}$$

$$\frac{5}{12} - \frac{4}{12} = \frac{1}{12}$$

$$\frac{8}{13} - \frac{5}{13} = \frac{3}{13}$$

$$11\frac{9}{10} - 8\frac{3}{10} = 3\frac{6}{10}$$

Section two: (The student should make no more than 2 mistakes on each of these points.)

Point 1: Multiply top and bottom of each these fractions by 3 to find equivalent fractions.

$$\frac{2}{5} = \frac{6}{15}$$

$$\frac{1}{3} = \frac{3}{9}$$

$$\frac{5}{8} = \frac{15}{24}$$

$$\frac{4}{7} = \frac{12}{21}$$

Point 2: Find equivalent fractions by dividing each fraction by 4.

$$\frac{4}{12} = \frac{1}{3}$$

$$\frac{32}{40} = \frac{8}{10}$$

$$\frac{20}{28} = \frac{5}{7}$$

$$\frac{40}{48} = \frac{10}{12}$$

$$\frac{12}{36} = \frac{3}{9}$$

$$\frac{16}{24} = \frac{4}{6}$$

Level 5 Placement Solutions

continued

Point 3: Multiply

x	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144