

# TEACHER GUIDE

Includes Student  
Quizzes



Weekly Lesson Schedule



Quizzes



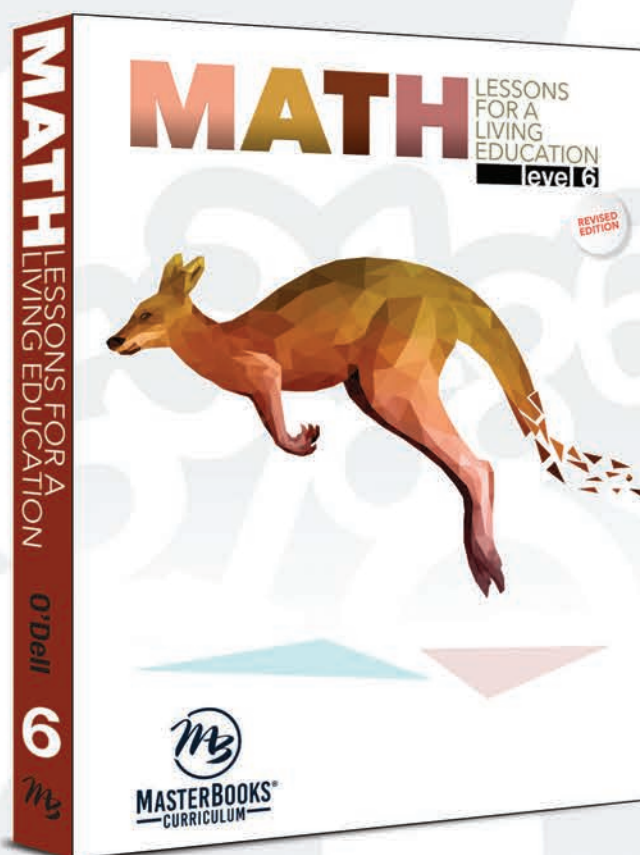
Solutions Manual

Level 6

Math

## MATH LEVEL 6

REVISED  
EDITION



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Solutions Manual

Level 6

Math

# Math Lessons for a Living Education: Level 6

REVISED  
EDITION



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First printing: July 2017

Sixth printing: March 2021

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Master Books®, P.O. Box 726, Green Forest, AR 72638

Master Books® is a division of the New Leaf Publishing Group, Inc.

ISBN: 978-1-68344-085-7

ISBN: 978-1-61458-599-2 (digital)

Printed in the United States of America

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### Author Bio:

As a homeschooling mom and author, **Angela O'Dell** embraces many aspects of the Charlotte Mason method, yet knows that modern children need an education that fits the needs of this generation. Based upon her foundational belief in a living God for a living education, she has worked to bring a curriculum that will reach deep into the heart of home-educated children and their families. She has written over 20 books, including her history series and her math series. Angela's goal is to bring materials that teach and train hearts and minds to find the answers for our generation in the never changing truth of God and His Word.

“

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## Using This Course

**Features:** The suggested weekly schedule enclosed has easy-to-manage lessons that guide the reading, worksheets, and all assessments. The pages of this guide are perforated and three-hole punched so materials are easy to tear out, hand out, grade, and store. Teachers are encouraged to adjust the schedule and materials needed in order to best work within their unique educational program.

**Lesson Scheduling:** Students are instructed to read the pages in their book and then complete the corresponding section provided by the teacher. Assessments that may include worksheets, activities, quizzes, and tests are given at regular intervals with space to record each grade. Space is provided on the weekly schedule for assignment dates, and flexibility in scheduling is encouraged. Teachers may adapt the scheduled days per each unique student situation.



**Approximately 30 minutes per day, five days a week, for 36 weeks**



**Quizzes are included to help reinforce learning and provide assessment opportunities**



**Worksheets are included in the student book for each section**



**Designed for grade 6 in a one-year math course**

## Course Description

Welcome to the sixth course in the **Math Lessons for a Living Education** series! This math series is based on these unwavering realities: *God does not separate our life lessons into subjects*; everything touches something else. Likewise, His creation is woven together as a multifaceted, multi-dimensional display of His ingenious creativity. Any given element of the universe that He has created is fascinating to explore. You are challenged to look up and out in this study of mathematics. This course will help students review and master important skills as they prepare to move into more advanced coursework. Designed to present math concepts in the context of real life, the student learns to apply the rules and techniques to solving everyday problems.

## Course Objectives: Students completing this course will

- ✓ Investigate math through developing critical thinking skills
- ✓ Become familiar with whole numbers, averaging, rounding, and fractions
- ✓ Identify decimal basics and using decimals in the real world
- ✓ Learn how to work with percentages in the real world
- ✓ Study basics of geometry from pairs to polygons
- ✓ Develop maps, graphs and charts, units of measure, and more.

### To the teacher: Mathematics and God’s relational character

God teaches us through relationships. He is the One who set the example for this principle, using the perfect relationship between the members of the Trinity. He wants a relationship with us (John 3:16). Our children need a good relationship with us — not just for the sake of that relationship, but to lead them to Jesus. We cannot save our children’s souls, but our relationship with our children can build trust and lead them to the One who can. Our children need to know that everything they can learn about the world around them is already known by God.

Think about this: the Alpha and the Omega, the Beginning and the End spoke, and His words created, and carried the power to set in motion everything in the world. God, the supreme architect, sent His words into the dark void and created the intricate, tiniest, most minute building blocks of matter, and then He taught them the secrets that keep them joining and bonding and creating larger building

blocks. And in the mix of all of this, He used the part of His wisdom and character that we humans call math. Psalm 19:1 says, “The heavens proclaim the glory of God. The skies display His craftsmanship.”

*Since God created it, math is a reflection of His character.* God is absolute, consistent, and unchanging. No matter how many times His character and promises are tested, they come out true. As we learn about His creation (including operations with numbers!), our faith in His unwavering faithfulness is strengthened.

*Those of us who are His children can come and ask for wisdom.* I hope you have chosen to accept Jesus as your Savior and Friend. If you have, you have the promise that God will help you and give you wisdom (James 1:5). “Fear of the Lord is the beginning of wisdom” (Prov. 9:10). This means that you can ask Him for help with learning!

## Math Level 6

Although this course was written mostly for the student, the story segments help the teacher build/strengthen a relationship with each student. The storyline of *Math Lessons for a Living Education Book 6* is not merely written to introduce math concepts; it is meant to bring the element of character and relationship to the study of math. Children learn best when they can learn through relationship. The story in this course is prayerfully crafted to reach into many issues that children this age are facing . . . the question of a personal faith in God, the question of trust in God's goodness even in the midst of hardship, the decision of letting God use pain for their good, etc. Read the story together, knowing that it is our tendency to push our children into independent learning at this age. Although a certain amount of independence is important, it is also extremely important that we maintain an element of closeness. **Our children need contact with us more at this age than almost at any other time. Stay close. Stay plugged in. Stay involved.**

- The concepts of math are a conversation between your student and the text. This Course is meant to grow your child's faith in God, critical thinking ability, and confidence in their God-given ability.
- **Quiz note:** If you have used the previous courses in this series, you are aware that they contain very few quizzes or tests. This is because they are written in such a way that your child is consistently showing you what they know. Book 6 is also written in this way, BUT, because quiz and test taking is a skill that they need in life, they have been added in this teacher guide. If you, as the teacher, do not want your child to take every single lesson quiz, simply use the lesson practice and review. You decide what your student needs and adjust this course to fit them. Please also note that lesson 22 of this course is ten days worth of work on some additional, rather advanced concepts. Please preview this lesson and read the note at the beginning of it. Also note that there is an optional, but highly recommended, two-day student presentation at the end of the book. You may want to tell your student about it, so he or she can be thinking on what to present.

**Note:** There is a complete list of supplies in the student book.

## First Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
First Semester-First Quarter					
Week 1	Day 1	Read Lesson 1: Working with Whole Numbers Pages 7-9 • <i>Math Level 6 Student Book</i> • (ML6) Complete Lesson 1 Exercise 1 • Pages 10-12 • (ML6)			
	Day 2	Complete Lesson 1 Exercise 2 • Page 13 • (ML6)			
	Day 3	Complete Lesson 1 Exercise 3 • Pages 14-15 • (ML6)			
	Day 4	Complete Lesson 1 Exercise 4 • Pages 16-17 • (ML6)			
	Day 5	Complete Lesson 1 Exercise 5 • Page 18 • (ML6)			
Week 2	Day 6	Complete Lesson 1 Exercise 6 • Pages 19-20 • (ML6)			
	Day 7	Complete Lesson 1 Exercise 7 • Pages 21-22 • (ML6)			
	Day 8	Complete Lesson 1 Exercise 8 • Pages 23-24 • (ML6)			
	Day 9	Complete Lesson 1 Exercise 9 • Pages 25-26 • (ML6)			
	Day 10	Complete Lesson 1 Exercise 10 Practice and Review Pages 27-28 • (ML6)			
Week 3	Day 11	Complete Lesson 1 Quiz Pages 17-18 • <i>Math Level 6 Teacher Guide</i> • (TG)			
	Day 12	Read Lesson 2: Whole Numbers in the Real World Pages 29-31 • (ML6) Complete Lesson 2 Exercise 1 • Page 32 • (ML6)			
	Day 13	Complete Lesson 2 Exercise 2 • Page 33 • (ML6)			
	Day 14	Complete Lesson 2 Exercise 3 • Pages 34-36 • (ML6)			
	Day 15	Complete Lesson 2 Exercise 4 • Pages 37-38 • (ML6)			
Week 4	Day 16	Complete Lesson 2 Exercise 5 • Pages 39-40 • (ML6)			
	Day 17	Complete Lesson 2 Exercise 6 • Pages 41-44 • (ML6)			
	Day 18	Complete Lesson 2 Exercise 7 • Pages 45-46 • (ML6)			
	Day 19	Complete Lesson 2 Exercise 8 Practice and Review Pages 47-48 • (ML6)			
	Day 20	Complete Lesson 2 Quiz • Pages 19-20 • (TG)			
Week 5	Day 21	Read Lesson 3: Averaging, Rounding, and Roman Numerals Pages 49-50 • (ML6) Complete Lesson 3 Exercise 1 • Pages 51-53 • (ML6)			
	Day 22	Complete Lesson 3 Exercise 2 • Pages 54-56 • (ML6)			
	Day 23	Complete Lesson 3 Exercise 3 • Pages 57-60 • (ML6)			
	Day 24	Complete Lesson 3 Exercise 4 • Pages 61-62 • (ML6)			
	Day 25	Complete Lesson 3 Exercise 5 • Pages 63-64 • (ML6)			
Week 6	Day 26	Complete Lesson 3 Exercise 6 • Pages 65-66 • (ML6)			
	Day 27	Complete Lesson 3 Exercise 7 • Pages 67-68 • (ML6)			
	Day 28	Complete Lesson 3 Exercise 8 Practice and Review Pages 69-70 • (ML6)			
	Day 29	Complete Lesson 3 Quiz • Pages 21-22 • (TG)			
	Day 30	Read Lesson 4: Fractions • Pages 71-73 • (ML6) Complete Lesson 4 Exercise 1 • Pages 74-76 • (ML6)			



Date	Day	Assignment	Due Date	✓	Grade
Week 7	Day 31	Complete Lesson 4 Exercise 2 • Pages 77-78 • (ML6)			
	Day 32	Complete Lesson 4 Exercise 3 • Pages 79-81 • (ML6)			
	Day 33	Complete Lesson 4 Exercise 4 • Pages 82-83 • (ML6)			
	Day 34	Complete Lesson 4 Exercise 5 • Pages 84-85 • (ML6)			
	Day 35	Complete Lesson 4 Exercise 6 • Pages 86-87 • (ML6)			
Week 8	Day 36	Complete Lesson 4 Exercise 7 Practice and Review Pages 88-90 • (ML6)			
	Day 37	Complete Lesson 4 Quiz • Pages 23-24 • (TG)			
	Day 38	Read Lesson 5: Working with Factors • Pages 91-92 • (ML6) Complete Lesson 5 Exercise 1 • Pages 93-94 • (ML6)			
	Day 39	Complete Lesson 5 Exercise 2 • Pages 95-96 • (ML6)			
	Day 40	Complete Lesson 5 Exercise 3 • Pages 97-98 • (ML6)			
Week 9	Day 41	Complete Lesson 5 Exercise 4 • Pages 99-100 • (ML6)			
	Day 42	Complete Lesson 5 Exercise 5 • Pages 101-102 • (ML6)			
	Day 43	Complete Lesson 5 Exercise 6 • Pages 103-104 • (ML6)			
	Day 44	Complete Lesson 5 Exercise 7 • Pages 105-108 • (ML6)			
	Day 45	Complete Lesson 5 Exercise 8 Practice and Review Pages 109-110 • (ML6)			
First Semester-Second Quarter					
Week 1	Day 46	Complete Lesson 5 Quiz • Pages 25-26 • (TG)			
	Day 47	Read Lesson 6: More about Fractions - Mixed Numbers Page 111 • (ML6) Complete Lesson 6 Exercise 1 • Pages 112-114 • (ML6)			
	Day 48	Complete Lesson 6 Exercise 2 • Pages 115-117 • (ML6)			
	Day 49	Complete Lesson 6 Exercise 3 • Pages 118-119 • (ML6)			
	Day 50	Complete Lesson 6 Exercise 4 • Pages 120-121 • (ML6)			
Week 2	Day 51	Complete Lesson 6 Exercise 5 • Pages 122-124 • (ML6)			
	Day 52	Complete Lesson 6 Exercise 6 • Pages 125-126 • (ML6)			
	Day 53	Complete Lesson 6 Exercise 7 Practice and Review Pages 127-128 • (ML6)			
	Day 54	Complete Lesson 6 Quiz • Pages 27-28 • (TG)			
	Day 55	Read Lesson 7: Using Factors and Multiples in Operations Pages 129-130 • (ML6) Complete Lesson 7 Exercise 1 • Pages 131-132 • (ML6)			
Week 3	Day 56	Complete Lesson 7 Exercise 2 • Pages 133-134 • (ML6)			
	Day 57	Complete Lesson 7 Exercise 3 • Pages 135-136 • (ML6)			
	Day 58	Complete Lesson 7 Exercise 4 • Pages 137-138 • (ML6)			
	Day 59	Complete Lesson 7 Exercise 5 • Pages 139-140 • (ML6)			
	Day 60	Complete Lesson 7 Exercise 6 • Pages 141-142 • (ML6)			

Date	Day	Assignment	Due Date	✓	Grade
Week 4	Day 61	Complete Lesson 7 Exercise 7 Practice and Review Pages 143-144 • (ML6)			
	Day 62	Complete Lesson 7 Quiz • Pages 29-30 • (TG)			
	Day 63	Read Lesson 8: Review of Fraction Concepts Pages 145-146 • (ML6) Complete Lesson 8 Exercise 1 • Pages 147-148 • (ML6)			
	Day 64	Complete Lesson 8 Exercise 2 • Page 149 • (ML6)			
	Day 65	Complete Lesson 8 Exercise 3 • Page 150 • (ML6)			
Week 5	Day 66	Complete Lesson 8 Exercise 4 • Pages 151-152 • (ML6)			
	Day 67	Complete Lesson 8 Exercise 5 Practice and Review Pages 153-154 • (ML6)			
	Day 68	Complete Lesson 8 Quiz • Pages 31-33 • (TG)			
	Day 69	Read Lesson 9: Adding and Subtracting Fractions and Mixed Numbers • Pages 155-156 • (ML6) Complete Lesson 9 Exercise 1 • Pages 157-158 • (ML6)			
	Day 70	Complete Lesson 9 Exercise 2 • Pages 159-160 • (ML6)			
Week 6	Day 71	Complete Lesson 9 Exercise 3 • Pages 161-162 • (ML6)			
	Day 72	Complete Lesson 9 Exercise 4 • Pages 163-165 • (ML6)			
	Day 73	Complete Lesson 9 Exercise 5 • Pages 166-167 • (ML6)			
	Day 74	Complete Lesson 9 Exercise 6 • Pages 168-169 • (ML6)			
	Day 75	Complete Lesson 9 Exercise 7 Practice and Review Pages 170-172 • (ML6)			
Week 7	Day 76	Complete Lesson 9 Quiz • Pages 35-36 • (TG)			
	Day 77	Read Lesson 10: Multiplying and Dividing Fractions Pages 173-174 • (ML6) Complete Lesson 10 Exercise 1 • Pages 175-176 • (ML6)			
	Day 78	Complete Lesson 10 Exercise 2 • Pages 177-178 • (ML6)			
	Day 79	Complete Lesson 10 Exercise 3 • Pages 179-180 • (ML6)			
	Day 80	Complete Lesson 10 Exercise 4 • Pages 181-182 • (ML6)			
Week 8	Day 81	Complete Lesson 10 Exercise 5 • Pages 183-184 • (ML6)			
	Day 82	Complete Lesson 10 Exercise 6 • Pages 185-187 • (ML6)			
	Day 83	Complete Lesson 10 Exercise 7 Practice and Review Page 188 • (ML6)			
	Day 84	Complete Lesson 10 Quiz • Pages 37-38 • (TG)			
	Day 85	Read Lesson 11: Comprehensive Review of all Advanced Fractional Concepts • Pages 189-190 • (ML6) Complete Lesson 11 Exercise 1 • Pages 191-192 • (ML6)			
Week 9	Day 86	Complete Lesson 11 Exercise 2 • Pages 193-194 • (ML6)			
	Day 87	Complete Lesson 11 Exercise 3 • Pages 195-198 • (ML6)			
	Day 88	Complete Lesson 11 Exercise 4 • Pages 199-200 • (ML6)			
	Day 89	Complete Lesson 11 Quiz • Page 39 • (TG)			
	Day 90	Read Lesson 12: Decimal Basics • Pages 201-202 • (ML6) Complete Lesson 12 Exercise 1 • Pages 203-204 • (ML6)			
		Mid-Term Grade			



## Second Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
Second Semester-Third Quarter					
Week 1	Day 91	Complete Lesson 12 Exercise 2 • Pages 205-207 • (ML6)			
	Day 92	Complete Lesson 12 Exercise 3 • Pages 208-209 • (ML6)			
	Day 93	Complete Lesson 12 Exercise 4 • Pages 210-212 • (ML6)			
	Day 94	Complete Lesson 12 Exercise 5 • Pages 213-214 • (ML6)			
	Day 95	Complete Lesson 12 Exercise 6 Practice and Review Pages 215-216 • (ML6)			
Week 2	Day 96	Complete Lesson 12 Quiz • Pages 41-42 • (TG)			
	Day 97	Read Lesson 13: More Work with Decimals Pages 217-218 • (ML6) Complete Lesson 13 Exercise 1 • Pages 219-220 • (ML6)			
	Day 98	Complete Lesson 13 Exercise 2 • Pages 221-223 • (ML6)			
	Day 99	Complete Lesson 13 Exercise 3 • Pages 224-225 • (ML6)			
	Day 100	Complete Lesson 13 Exercise 4 • Pages 226-227 • (ML6)			
Week 3	Day 101	Complete Lesson 13 Exercise 5 • Pages 228-230 • (ML6)			
	Day 102	Complete Lesson 13 Exercise 6 • Pages 231-232 • (ML6)			
	Day 103	Complete Lesson 13 Exercise 7 • Pages 233-235 • (ML6)			
	Day 104	Complete Lesson 13 Exercise 8 Practice and Review Pages 236-238 • (ML6)			
	Day 105	Complete Lesson 13 Quiz • Pages 43-44 • (TG)			
Week 4	Day 106	Read Lesson 14: Using Decimals in the Real World Pages 239-240 • (ML6) Complete Lesson 14 Exercise 1 • Pages 241-243 • (ML6)			
	Day 107	Complete Lesson 14 Exercise 2 • Pages 244-245 • (ML6)			
	Day 108	Complete Lesson 14 Exercise 3 • Pages 246-248 • (ML6)			
	Day 109	Complete Lesson 14 Exercise 4 • Pages 249-251 • (ML6)			
	Day 110	Complete Lesson 14 Exercise 5 • Pages 252-254 • (ML6)			
Week 5	Day 111	Complete Lesson 14 Exercise 6 Practice and Review Pages 255-258 • (ML6)			
	Day 112	Complete Lesson 14 Quiz • Pages 45-46 • (TG)			
	Day 113	Read Lesson 15: Percents • Pages 259-260 • (ML6) Complete Lesson 15 Exercise 1 • Pages 261-262 • (ML6)			
	Day 114	Complete Lesson 15 Exercise 2 • Pages 263-264 • (ML6)			
	Day 115	Complete Lesson 15 Exercise 3 • Pages 265-266 • (ML6)			
Week 6	Day 116	Complete Lesson 15 Exercise 4 • Pages 267-268 • (ML6)			
	Day 117	Complete Lesson 15 Exercise 5 • Pages 269-270 • (ML6)			
	Day 118	Complete Lesson 15 Exercise 6 • Pages 271-272 • (ML6)			
	Day 119	Complete Lesson 15 Exercise 7 • Pages 273-274 • (ML6)			
	Day 120	Complete Lesson 15 Exercise 8 Practice and Review Pages 275-276 • (ML6)			

Date	Day	Assignment	Due Date	✓	Grade
Week 7	Day 121	Complete Lesson 15 Quiz • Pages 47-48 • (TG)			
	Day 122	Read Lesson 16: Using Decimals and Percents in the Real World — Savvy Shopping • Pages 277-278 • (ML6) Complete Lesson 16 Exercise 1 • Pages 279-280 • (ML6)			
	Day 123	Complete Lesson 16 Exercise 2 • Pages 281-282 • (ML6)			
	Day 124	Complete Lesson 16 Exercise 3 • Pages 283-284 • (ML6)			
	Day 125	Complete Lesson 16 Exercise 4 • Page 285 • (ML6)			
Week 8	Day 126	Complete Lesson 16 Exercise 5 • Page 286 • (ML6)			
	Day 127	Complete Lesson 16 Quiz • Pages 49-50 • (TG)			
	Day 128	Read Lesson 17: Comprehensive Review of Fractions, Decimals, and Percents • Pages 287-288 • (ML6) Complete Lesson 17 Exercise 1 • Pages 289-290 • (ML6)			
	Day 129	Complete Lesson 17 Exercise 2 • Page 291 • (ML6)			
	Day 130	Complete Lesson 17 Exercise 3 • Page 292 • (ML6)			
Week 9	Day 131	Complete Lesson 17 Exercise 4 • Pages 293-294 • (ML6)			
	Day 132	Complete Lesson 17 Narration Quiz • Pages 51-52 • (TG)			
	Day 133	Read Lesson 18: Geometry • Page 295 • (ML6) Complete Lesson 18 Exercise 1 • Pages 296-298 • (ML6)			
	Day 134	Complete Lesson 18 Exercise 2 • Pages 299-301 • (ML6)			
	Day 135	Complete Lesson 18 Exercise 3 • Pages 302-304 • (ML6)			
Second Semester-Fourth Quarter					
Week 1	Day 136	Complete Lesson 18 Exercise 4 • Pages 305-307 • (ML6)			
	Day 137	Complete Lesson 18 Exercise 5 • Pages 308-310 • (ML6)			
	Day 138	Complete Lesson 18 Exercise 6 • Pages 311-313 • (ML6)			
	Day 139	Complete Lesson 18 Exercise 7 • Pages 314-316 • (ML6)			
	Day 140	Complete Lesson 18 Exercise 8 • Pages 317-319 • (ML6)			
Week 2	Day 141	Complete Lesson 18 Exercise 9 • Pages 320-321 • (ML6)			
	Day 142	Complete Lesson 18 Exercise 10 Practice and Review Pages 322-324 • (ML6)			
	Day 143	Complete Lesson 18 Quiz • Page 53 • (TG)			
	Day 144	Read Lesson 19: Maps! • Page 325 • (ML6) Complete Lesson 19 Exercise 1 • Pages 326-328 • (ML6)			
	Day 145	Complete Lesson 19 Exercise 2 • Pages 329-330 • (ML6)			
Week 3	Day 146	Complete Lesson 19 Exercise 3 • Pages 331-332 • (ML6)			
	Day 147	Complete Lesson 19 Exercise 4 • Pages 333-334 • (ML6)			
	Day 148	Complete Lesson 19 Exercise 5 • Pages 335-336 • (ML6)			
	Day 149	Complete Lesson 19 Quiz • Page 55 • (TG)			
	Day 150	Read Lesson 20: Graphs and Charts • Page 337 • (ML6) Complete Lesson 20 Exercise 1 • Pages 338-339 • (ML6)			

Date	Day	Assignment	Due Date	✓	Grade
Week 4	Day 151	Complete Lesson 20 Exercise 2 • Pages 340-342 • (ML6)			
	Day 152	Complete Lesson 20 Exercise 3 • Pages 343-344 • (ML6)			
	Day 153	Complete Lesson 20 Exercise 4 • Pages 345-347 • (ML6)			
	Day 154	Complete Lesson 20 Exercise 5 • Pages 348-349 • (ML6)			
	Day 155	Complete Lesson 20 Exercise 6 • Pages 350-351 • (ML6)			
Week 5	Day 156	Complete Lesson 20 Exercise 7 • Pages 352-353 • (ML6)			
	Day 157	Complete Lesson 20 Exercise 8 • Page 354 • (ML6)			
	Day 158	Complete Lesson 20 Quiz • Pages 57-60 • (TG)			
	Day 159	Read Lesson 21: Units of Measure • Page 355 • (ML6) Complete Lesson 21 Exercise 1 • Pages 356-357 • (ML6)			
	Day 160	Complete Lesson 21 Exercise 2 • Pages 358-360 • (ML6)			
Week 6	Day 161	Complete Lesson 21 Exercise 3 • Pages 361-362 • (ML6)			
	Day 162	Complete Lesson 21 Exercise 4 • Pages 363-364 • (ML6)			
	Day 163	Complete Lesson 21 Exercise 5 • Pages 365-367 • (ML6)			
	Day 164	Complete Lesson 21 Exercise 6 Practice and Review • Page 368 • (ML6)			
	Day 165	Complete Lesson 21 Quiz • Page 61 • (TG)			
Week 7	Day 166	Read Lesson 22: Additional Topics • Page 369 • (ML6) Complete Lesson 22 Exercise 1 • Pages 370-371 • (ML6)			
	Day 167	Complete Lesson 22 Exercise 2 • Pages 372-373 • (ML6)			
	Day 168	Complete Lesson 22 Exercise 3 • Pages 374-375 • (ML6)			
	Day 169	Complete Lesson 22 Exercise 4 • Pages 376-377 • (ML6)			
	Day 170	Complete Lesson 22 Exercise 5 • Pages 378-379 • (ML6)			
Week 8	Day 171	Complete Lesson 22 Exercise 6 • Pages 380-381 • (ML6)			
	Day 172	Complete Lesson 22 Exercise 7 • Pages 382-383 • (ML6)			
	Day 173	Complete Lesson 22 Exercise 8 • Pages 384-385 • (ML6)			
	Day 174	Complete Lesson 22 Exercise 8 Practice and Review — Hands-on exploration of circles • Page 386 • (ML6)			
	Day 175	Complete Lesson 22 Narration Quiz • Page 63 • (TG)			
Week 9	Day 176	Cumulative Review, part 1 • Page 15 • (TG)			
	Day 177	Cumulative Review, part 2 • Page 16 • (TG)			
	Day 178	Complete Final Exam • Pages 65-68 • (TG)			
	Day 179	Optional End of Year Show and Tell • Page 69 • (TG)			
	Day 180	Optional End of Year Show and Tell • Page 70 • (TG)			
		Final Grade			

# Review & Quiz Section

## Cumulative Review, part 1

You will need these materials:

1. Your math book or notebook if you have been removing the pages as you go
2. A white board / markers / eraser
3. Your teacher

Check off each one as you complete it.

Look through each lesson carefully. If there are any areas of concern, take the time to work through the concept in question, using your whiteboard and discussing it thoroughly with your teacher.

\_\_\_\_\_ Lesson 1: Working with Whole Numbers

\_\_\_\_\_ Lesson 2: Whole Numbers in the Real World

\_\_\_\_\_ Lesson 3: Averaging, Rounding, and Roman Numerals

\_\_\_\_\_ Lesson 4: Fractions

\_\_\_\_\_ Lesson 5: Working with Factors

\_\_\_\_\_ Lesson 6: More About Fractions — Mixed Numbers

\_\_\_\_\_ Lesson 7: Using Factors and Multiples in Operations

\_\_\_\_\_ Lesson 8: Review of Fraction Concepts

\_\_\_\_\_ Lesson 9: Adding and Subtracting Fractions and Mixed Numbers

\_\_\_\_\_ Lesson 10: Multiplying and Dividing Fractions

## Cumulative Review, part 2

You will need these materials:

1. Your math book or notebook if you have been removing the pages as you go
2. A white board / markers / eraser
3. Your teacher

Check off each one as you complete it.

Look through each lesson carefully. If there are any areas of concern, take the time to work through the concept in question, using your whiteboard and discussing it thoroughly with your teacher.

\_\_\_\_\_ Lesson 12: Decimal Basics

\_\_\_\_\_ Lesson 13: More Work with Decimals

\_\_\_\_\_ Lesson 14: Using Decimals in the Real World

\_\_\_\_\_ Lesson 15: Percents

\_\_\_\_\_ Lesson 16: Using Decimals and Percents in the Real World — Savvy Shopping

\_\_\_\_\_ Lesson 18: Geometry

\_\_\_\_\_ Lesson 19: Maps!

\_\_\_\_\_ Lesson 20: Graphs and Charts

\_\_\_\_\_ Lesson 21: Units of Measure



Name \_\_\_\_\_

Quiz

1

Day  
11

**10 problems - 10 points each**

1. Write these numbers vertically and add them. Circle the one(s) that used carrying.

a.  $342 + 652 + 702 =$

b.  $892 + 128 + 286 =$

2. Now round all of the numbers in the problems 1a and 1b and estimate the sum of each addition problem. Optional: auditory learners may do this orally.

3. Write these numbers vertically and subtract. Circle the one(s) that used borrowing.

a.  $672 - 599 =$

b.  $76,984 - 33,218 =$

4. Now round all of the numbers in the problems 3a and 3b and estimate the answer of each subtraction problem. Optional: auditory learners may do this orally.

5. Write these numbers vertically and multiply them. Circle the one(s) that used carrying.

a.  $419 \times 503 =$

b.  $7,891 \times 888 =$

6. Now round all of the numbers in the problems 5a and 5b and estimate the answer of each multiplication problem. Optional: auditory learners may do this orally.

Name \_\_\_\_\_

Quiz

1

Day  
11

7. Divide. Next to each problem, use rounding to estimate the answer.

a.  $735 \div 23 =$

b.  $9,451 \div 45 =$

8. What are the three ways of writing a division problem? Show them using 9 as the dividend and 3 as the divisor.

9. Write the divisibility rules for:

Dividing 2:

Dividing 5:

Dividing 9:

Dividing 3:

Dividing 4:

10. Multiplication facts! Complete your multiplication drill.

**20 problems, 5 points each**

1. If you had a list of monthly expenses and bills, how would you find out what your monthly budget should be? Why?
2. If you knew you had a certain amount of money in your bank account, how would you keep track of your current amount as you took money out to pay for your expenses? Why?
3. If you got a job that paid \$15 for every hour you worked, how would you figure out what your paycheck should be after working 35 hours? Why?
4. Use the answer to problem 3 to solve. How much money would you have after working 4 weeks of work 35 hrs/week?
5. When you come across a story problem that has too much information, what are the four steps you would follow to find the answer?

What are the clue words for:

6. adding
7. multiplying
8. subtracting
9. dividing
10. Circle the number that you would enter into your calculator first to solve this problem.  
 $81,918 \div 9 =$

Solve each problem using regular calculation. Check with your calculator. Draw your calculator's buttons next to each problem to show how you would enter the numbers to solve each problem.

11.  $62,215 + 3,110 + 4,879 =$
12.  $3,862 - 2,998 =$
13.  $3,871 \times 382 =$

Name \_\_\_\_\_

Quiz

2

Day  
20

14. The mountain climber was determined to climb Mount McKinley. In his first attempt, he climbed 16,385 feet before turning back. In his second attempt, he got dizzy at 14,310 feet and had to return to his base camp. Finally, in his final attempt, he reached the 20,310 foot summit. Write and solve equations showing how close he got to the summit in each of his first two attempts.
  
15. How many feet did he climb altogether?
  
  
  
  
  
  
  
  
  
  
16. If the family grocery budget is \$7,200 per year, how much do they spend on groceries each month?
  
  
  
  
  
  
  
  
  
  
17. If their total monthly budget is \$4,600, how much do they have left after the grocery budget is spent?
  
  
  
  
  
  
  
  
  
  
18. How much is their total yearly budget? If they save \$300 per month, how much do they save a year?
  
  
  
  
  
  
  
  
  
  
19. Write your own multi-step story problem using clue words for addition and subtraction. Solve your problem.
  
  
  
  
  
  
  
  
  
  
20. Write your own multi-step story problem using clue words for multiplication and division. Solve your problem.

Name \_\_\_\_\_

Final Exam

Day  
178

25 problems - 4 points each

1. Write 923,805,001 in number words.

2. Reduce these fractions by using factoring and cancellation.

(a)  $\frac{320}{740}$

(b)  $\frac{680}{990}$

(c)  $\frac{700}{1,100}$

3. Factor these numbers down to their prime factors by using factoring trees.

(a) 615

(b) 850

(c) 384

4.  $14 \div \frac{3}{7} =$

5.  $2\frac{5}{9} \times 6\frac{1}{2} =$

6.  $3\frac{1}{4} + 1\frac{4}{5} - 4\frac{3}{10} =$

7. Explain in detail when you should use GCF.

8. Explain in detail when you should use LCM.

9. What is 2% written as a decimal? \_\_\_\_\_ as a fraction? \_\_\_\_\_

Name \_\_\_\_\_

Final Exam

Day  
178

10. Write 65% as a reduced fraction.

11. Write 4.52 as a percent.

12. Percent means \_\_\_\_\_.

13. What is 30% of 550?

14. What is 10% of \$75.69?

With your protractor, draw these angles. Label them.

15. Acute angle  $80^\circ$

16. Obtuse angle  $170^\circ$

17. Find the perimeter of these shapes: A square with 12-foot sides and a rectangle with sides that are 22 feet long and 16 feet long.

18. What is the difference between a line and a segment?

19. How are circles labeled?

20. What is the diameter of a circle that has a 9.5 feet radius?

Name \_\_\_\_\_

## Exercise 1

Day 1

**Place value / writing large numbers / odds and evens**

**Concept #1: Place Value**  
 When we are working with whole numbers, it is very important to understand place value. Study the concept below and solve the problems. As you work through the problems, it may help to narrate the process to your teacher. Do you understand completely? If not, take the time now to gain more confidence and understanding.

Let's review the place value up to through the millions.

One Hundred Millions	Ten Millions	One Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
3	8	7	8	3	1	2	2	3
			9	0	0	1	2	6
				3	4	4	9	2

**Solve these problems**

- Circle the digit in the ten's place:  
 65 5 Odd      32,685 Odd      201 Odd      1,45,834 Even
- Circle the digit in the ten thousand's place:  
 235,687 Odd      84,700 Even      1,45,834 Even
- Circle the digit in the hundred's place:  
 4,982000 Even      10 Even      789351 Odd
- Fill in the place value chart with this number:  
 831,223 Odd      387,900,126 Even      34,442 Even

**Use Your Words!** Explain to your teacher everything you know about place value.  
 Teacher check \_\_\_\_\_

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## Exercise 1

Day 1

Practice saying and writing these numbers in number words.

- 45,782    forty-five thousand, seven hundred eighty-two    Even
- 329,216,335    three hundred twenty-nine million, two hundred sixteen thousand, three hundred thirty-five    Odd
- 6,894    six thousand, eight hundred ninety-four    Even
- 561    five hundred sixty-one    Odd
- 429,531,085    four hundred twenty-nine million, five hundred thirty-one thousand, eighty-five    Odd

**Use Your Words!** Explain to your teacher what you know about writing and saying large numbers.  
 Teacher check \_\_\_\_\_

**Concept #3: Odds and Evens**  
 We have learned that all numbers are either odd or even. An odd number cannot be evenly divided into two equal groups; there will always be one left over. An even number can always be divided into two equal groups with nothing left over.

Odd numbers always end in these numbers: 1, 3, 5, 7, 9

Even numbers always end in these numbers: 0, 2, 4, 6, 8

- Look at all of the numbers in problems 1–4 and 6–10 in this exercise. Above or beside each number, write O for odd or E for even.
- Use Your Words!** Explain what you know about odd and even numbers.

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## Exercise 2

Day  
2

**Rounding tricks**

When we work with numbers, we often need to round them to make it easier to do computations with them. For example, we may need to quickly estimate what several large numbers are all together. It is important to know the process of rounding and estimating.

I am going to teach you some fun tricks to remember when you are rounding, but first let's review the steps of rounding.

**Example:** Round 367 to the hundreds place.

Decide what two "hundreds" 367 is between, 300 and 400

Underline the digit in the place to which you are rounding. (3)

**Trick #1:** Ask the neighbor number if you should round to the smaller hundred or the larger hundred. Is the neighbor number to the right (6) five or bigger? If it is, round to the bigger hundred. If it is smaller than five, round to the smaller hundred.

**Trick #2:** Turn all the neighbors to the right of the place to which you are rounding into place holder zeros. 367 becomes 400.

Now you try it:

Round these numbers to the ten's place.

1.  $423$   $420$

2.  $45$   $50$

3.  $391$   $390$

4.  $56$   $60$

5.  $1257$   $1,260$

Round these numbers to the hundred's place.

6.  $23,490$   $23,500$

7.  $823$   $800$

8.  $127,947$   $127,900$

9.  $309$   $300$

10.  $989$   $1,000$

Round these numbers to the thousand's place.

11.  $34,980$   $35,000$

12.  $5,459$   $5,000$

13.  $178,251$   $178,000$

14.  $29,589$   $30,000$

15.  $1,474,910$   $1,475,000$

16. Use Your Words! Explain the process of rounding.

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## Exercise 3

Day  
3

**Addition (short and long)**

Numbers are amazing, aren't they? They can show how many socks we own, or they can show how many socks our whole family owns. When we want to combine two or more numbers, we use an operation called adding. By adding two numbers (addends) together, we come up with an answer called the sum. Remember, addends may be added in any order without changing the sum.

Let's start with a review of simple addition.

We can add horizontally:

1.  $20 + 6 = 26$

2.  $34 + 10 = 44$

3.  $42 + 8 = 50$

4.  $90 + 6 = 96$

5.  $35 + 4 = 39$

6.  $12 + 12 = 24$

We can add vertically:

7. 
$$\begin{array}{r} 46 \\ + 23 \\ \hline 69 \end{array}$$

8. 
$$\begin{array}{r} 85 \\ + 14 \\ \hline 99 \end{array}$$

9. 
$$\begin{array}{r} 13 \\ + 14 \\ \hline 27 \end{array}$$

10. 
$$\begin{array}{r} 68 \\ + 11 \\ \hline 79 \end{array}$$

11. 
$$\begin{array}{r} 54 \\ + 14 \\ \hline 68 \end{array}$$

12. 
$$\begin{array}{r} 76 \\ + 13 \\ \hline 89 \end{array}$$

**We can add with carrying.**

In this problem, when we add the one's column, we end up with more than what can fit in the one's place (a number larger than 9). This means that we have to carry the group of ten up to the top of the ten's column and add it to the rest of the tens.

$$\begin{array}{r} 1 \\ 56 \\ + 16 \\ \hline 72 \end{array}$$

Example:  $72$

$$\begin{array}{r} 1 \\ 367 \\ + 134 \\ + 501 \\ \hline 1,002 \end{array}$$

Example:  $1,002$

Add with carrying:

13. 
$$\begin{array}{r} 239 \\ + 34 \\ \hline 273 \end{array}$$

14. 
$$\begin{array}{r} 11 \\ 567 \\ + 189 \\ \hline 756 \end{array}$$

15. 
$$\begin{array}{r} 11 \\ 199 \\ + 1 \\ \hline 200 \end{array}$$

16. 
$$\begin{array}{r} 1 \\ 469 \\ + 11 \\ \hline 480 \end{array}$$

17. 
$$\begin{array}{r} 1 \\ 613 \\ + 18 \\ \hline 631 \end{array}$$

18. 
$$\begin{array}{r} 1 \\ 399 \\ + 10 \\ \hline 409 \end{array}$$

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### Exercise 3

Day 3

You can add more than two numbers.

Horizontal addition.

$$19. 12 + 34 + 10 = 56$$

$$20. 31 + 17 + 11 = 59$$

$$21. 10 + 5 + 13 = 28$$

Vertical addition.

$$\begin{array}{r} 124 \\ + 12 \\ + 15 \\ \hline 151 \end{array}$$

$$\begin{array}{r} 354 \\ 45 \\ + 10 \\ \hline 409 \end{array}$$

$$23. \begin{array}{r} 56 \\ 13 \\ + 11 \\ \hline 80 \end{array}$$

$$24. \begin{array}{r} 354 \\ 45 \\ + 10 \\ \hline 409 \end{array}$$

You can use rounding to estimate the answer to an addition problem by rounding the addends before adding. This will give you an estimated answer. For example:

$$\begin{array}{r} 610 \\ + 489 \\ \hline \end{array} \rightarrow \begin{array}{r} 600 \\ + 500 \\ \hline 1,100 \end{array}$$

Now you try some:

Round to estimate the sums. Graphics, these need to be laid out like the sample.

$$25. \begin{array}{r} 439 \\ + 227 \\ \hline \end{array} \rightarrow \begin{array}{r} 400 \\ + 200 \\ \hline 600 \end{array}$$

$$26. \begin{array}{r} 981 \\ + 238 \\ \hline \end{array} \rightarrow \begin{array}{r} 1,000 \\ + 200 \\ \hline 1,200 \end{array}$$

$$27. \begin{array}{r} 561 \\ + 484 \\ \hline \end{array} \rightarrow \begin{array}{r} 600 \\ + 500 \\ \hline 1,100 \end{array}$$

$$28. \begin{array}{r} 735 \\ + 652 \\ \hline \end{array} \rightarrow \begin{array}{r} 700 \\ + 700 \\ \hline 1,400 \end{array}$$

29. **Use Your Words!** Explain the process of adding with carrying.

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### Exercise 4

Day 4

**The Short and Long of Subtraction**

What happens when you lose a pair of socks, and your mom asks you how many you have left? You know you used to have 10 pairs of socks, but you lost one, when you came in from playing in the snow, only to realize that your boot had eaten your favorite pair, and now another pair has been lost forever in the clutter under your brother's bed. Things aren't looking so good for your sock drawer! You stop to think, I used to have 10 pairs of socks, but my boots ate 1 pair, and then my brother's clutter claimed another pair... so that's 10 minus (that means take away) 1 is 9, and 9 minus 1 is 8. If this keeps up, I'm going to run out of socks before the end of the winter! But you try to stay positive as you answer your mom, "I have 8 pairs of socks left, Mom. At least I still have one for every day of the week, plus one more just in case..."

So, what does that look like on paper?



Example:  $10 - 1 = 9$       $9 - 1 = 8$

We can subtract horizontally.

$$1. 26 - 4 = 22$$

$$2. 54 - 2 = 52$$

$$3. 49 - 8 = 41$$

$$4. 98 - 6 = 92$$

$$5. 67 - 4 = 63$$

$$6. 12 - 12 = 0$$

We can subtract vertically.

$$7. \begin{array}{r} 56 \\ - 22 \\ \hline 34 \end{array}$$

$$8. \begin{array}{r} 95 \\ - 34 \\ \hline 61 \end{array}$$

$$9. \begin{array}{r} 32 \\ - 11 \\ \hline 21 \end{array}$$

$$10. \begin{array}{r} 65 \\ - 11 \\ \hline 54 \end{array}$$

$$11. \begin{array}{r} 54 \\ - 24 \\ \hline 30 \end{array}$$

$$12. \begin{array}{r} 66 \\ - 16 \\ \hline 50 \end{array}$$

We can subtract where we have to borrow a group of ten from the ten's place.

$$\begin{array}{r} 4 \\ 386 \\ - 237 \\ \hline 149 \end{array}$$

We can subtract where we have to borrow a group of ten from the ten's place and a group of a hundred from the hundred's place.

$$\begin{array}{r} 711 \\ 883 \\ - 654 \\ \hline 169 \end{array}$$

Example: 169

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## Exercise 4

Day 4

Subtract. Circle the problems in which you used borrowing.

$$\begin{array}{r} 245 \\ - 231 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 3148 \\ - 399 \\ \hline 79 \end{array}$$

$$\begin{array}{r} 123 \\ - 15 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 981 \\ - 756 \\ \hline 225 \end{array}$$

$$\begin{array}{r} 671 \\ - 445 \\ \hline 226 \end{array}$$

$$\begin{array}{r} 387 \\ - 222 \\ \hline 165 \end{array}$$

$$\begin{array}{r} 5112 \\ 6231 \\ - 4999 \\ \hline 1232 \end{array}$$

$$\begin{array}{r} 23,612 \\ - 19,212 \\ \hline 4,400 \end{array}$$

$$\begin{array}{r} 994 \\ 10,000 \\ - 999 \\ \hline 9,001 \end{array}$$

$$\begin{array}{r} 410129 \\ 57209 \\ - 24,648 \\ \hline 26,661 \end{array}$$

$$\begin{array}{r} 183,272 \\ - 61,151 \\ \hline 122,121 \end{array}$$

$$\begin{array}{r} 910 \\ - 750 \\ \hline 160 \end{array}$$

We can use rounding to estimate an answer in a subtraction problem by rounding the minuend and the subtrahend before finding the estimated difference.

For example:

$$\begin{array}{r} 910 \\ - 750 \\ \hline 160 \end{array}$$

Now you try it!

$$\begin{array}{r} 823 \\ - 189 \\ \hline 600 \end{array}$$

$$\begin{array}{r} 612 \\ - 477 \\ \hline 100 \end{array}$$

$$\begin{array}{r} 952 \\ - 899 \\ \hline 100 \end{array}$$

$$\begin{array}{r} 215 \\ - 173 \\ \hline 0 \end{array}$$

28. Use Your Words! Explain the process you used to solve problem 14 of this exercise.

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## Exercise 5

Day 5

**Multiplication Basics and Multiplication Facts Review**

In your previous years of studying math, you have learned that skip counting is another way to learn the factors in a multiplication family. When you skip count by 2, you use this pattern:

$$\begin{array}{l} 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, \dots \\ (1 \times 2) (2 \times 2) (3 \times 2) (4 \times 2) (5 \times 2) (6 \times 2) (7 \times 2) (8 \times 2) (9 \times 2) (10 \times 2) \end{array}$$

As you can see, you are adding another group of 2 to each number to get the next number. You are probably very familiar with counting by 2s. Explain to your teacher how skip counting is related to multiplication. In the following problems, show how skip counting and multiplication go together, like I did with the 2s above.

- Skip count by 3 to 30: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30  
(1×3) (2×3) (3×3) (4×3) (5×3) (6×3) (7×3) (8×3) (9×3) (10×3)
- Skip count by 4 to 40: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40  
(1×4) (2×4) (3×4) (4×4) (5×4) (6×4) (7×4) (8×4) (9×4) (10×4)
- Skip count by 5 to 50: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50  
(1×5) (2×5) (3×5) (4×5) (5×5) (6×5) (7×5) (8×5) (9×5) (10×5)
- Skip count by 6 to 60: 6, 12, 18, 24, 30, 36, 42, 48, 54, 60  
(1×6) (2×6) (3×6) (4×6) (5×6) (6×6) (7×6) (8×6) (9×6) (10×6)
- Skip count by 7 to 70: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70  
(1×7) (2×7) (3×7) (4×7) (5×7) (6×7) (7×7) (8×7) (9×7) (10×7)
- Skip count by 8 to 80: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80  
(1×8) (2×8) (3×8) (4×8) (5×8) (6×8) (7×8) (8×8) (9×8) (10×8)
- Skip count by 9 to 90: 9, 18, 27, 36, 45, 54, 63, 72, 81, 90  
(1×9) (2×9) (3×9) (4×9) (5×9) (6×9) (7×9) (8×9) (9×9) (10×9)
- Skip count by 10 to 100: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100  
(1×10) (2×10) (3×10) (4×10) (5×10) (6×10) (7×10) (8×10) (9×10) (10×10)
- Review your multiplication facts. Complete your laminated multiplication drill from the appendix of this book. If there are any that you need to practice, make flashcards to drill them until you know them very well.

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## Exercise 6

Day 6

### Long Multiplication

Now that we have reviewed the basics of multiplication, let's move on and really stretch our minds! Study the steps in the example:

$$\begin{array}{r} 55 \\ \times 15 \\ \hline 275 \\ + 550 \\ \hline 825 \end{array}$$

This zero is a place holder.

1. Multiply the top factor by the number in the one's place of the bottom factor.
2. Place a zero to hold the one's place and then multiply the top factor by the number in the ten's place of the bottom factor
3. Add both partial factors together to complete the problem.

Now you try it:

$$\begin{array}{r} 41 \\ \times 22 \\ \hline 82 \\ + 820 \\ \hline 902 \end{array}$$

$$\begin{array}{r} 230 \\ \times 12 \\ \hline 460 \\ + 2,300 \\ \hline 2,760 \end{array}$$

$$\begin{array}{r} 64 \\ \times 12 \\ \hline 128 \\ + 640 \\ \hline 768 \end{array}$$

$$\begin{array}{r} 301 \\ \times 15 \\ \hline 1,505 \\ + 3,010 \\ \hline 4,515 \end{array}$$

$$\begin{array}{r} 88 \\ \times 11 \\ \hline 88 \\ + 880 \\ \hline 968 \end{array}$$

$$\begin{array}{r} 412 \\ \times 34 \\ \hline 1,648 \\ + 12,360 \\ \hline 14,008 \end{array}$$

Now let's make the numbers bigger! You will need to use carrying. Study the example:

$$\begin{array}{r} 245 \\ \times 110 \\ \hline 000 \\ 2450 \\ + 24500 \\ \hline 26,950 \end{array}$$

Follow the same steps as before.

You will need 2 place holder zeros, one for the one's place and one for the ten's place.

Now you try it!

$$\begin{array}{r} 398 \\ \times 645 \\ \hline 1,990 \\ 11,940 \\ + 238,800 \\ \hline 256,710 \end{array}$$

$$\begin{array}{r} 1,247 \\ \times 1,275 \\ \hline 6,235 \\ 11,223 \\ + 150,000 \\ \hline 1,592,000 \\ + 498,800 \\ \hline 2,090,800 \end{array}$$

$$\begin{array}{r} 723 \\ \times 579 \\ \hline 6,507 \\ 50,610 \\ + 361,500 \\ \hline 418,617 \end{array}$$

$$\begin{array}{r} 510,023 \\ \times 418,617 \\ \hline 357,015,111 \\ 209,011,541 \\ + 209,011,541 \\ \hline 213,011,541 \\ + 2,090,115,410 \\ \hline 2,303,127,051 \end{array}$$

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## Exercise 6

Day 6

You can use **rounding to estimate** in multiplication by rounding each of the factors before multiplying them to find the estimated product. This example shows a multiplication problem with one large factor (303) and one smaller factor (4). You can use the same process with larger problems, simply by rounding both numbers and multiplying like usual.

Example:

$$\begin{array}{r} 303 \\ \times 4 \\ \hline 1,200 \end{array}$$

You try a few! The first one is done for you.

$$\begin{array}{r} 544 \\ \times 67 \\ \hline 35,000 \end{array}$$

$$\begin{array}{r} 303 \\ \times 4 \\ \hline 1,200 \end{array}$$

$$\begin{array}{r} 923 \\ \times 52 \\ \hline 45,000 \end{array}$$

$$\begin{array}{r} 782 \\ \times 89 \\ \hline 72,000 \end{array}$$

$$\begin{array}{r} 500 \\ \times 70 \\ \hline 35,000 \end{array}$$

$$\begin{array}{r} 800 \\ \times 90 \\ \hline 72,000 \end{array}$$

$$\begin{array}{r} 900 \\ \times 50 \\ \hline 45,000 \end{array}$$

Note: I multiplied 5 x 7 and then added the number of zeros both factors had (3 zeros).

14. Use Your Words! Explain the process you worked through in problem 9 of this exercise.

Answers will vary but should be sure to mention using place holder zeros when adding to solve a multiplication problem.

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**Exercise 7** Day 7

**Division basics**

You have learned that addition and subtraction are related. In the space below,

1. Use **Your Noodle** — draw a doodle! showing how addition and subtraction go together.

*Answers will vary.*

2. Now, let's quickly review the concept of division! If you have 6 cookies, and your mom says, "That's way too many! Share half of those with your brother!" How many cookies will each of you have?  $\frac{3}{2}$ . That's division. How did you do it? Draw a doodle below. Underneath that, draw a doodle of how multiplication and division are related.

*Answers will vary.*

3. Do a quick review of your division facts! Study these multiplication facts and write the matching division facts that go with them.

Example:  $12 \times 12 = 144$

division:  $144 \div 12 = 12$

$3 \times 4 = 12$

division:  $12 \div 4 = 3$  or  $12 \div 3 = 4$

$5 \times 3 = 15$

division:  $15 \div 3 = 5$  or  $15 \div 5 = 3$

$9 \times 3 = 27$

division:  $27 \div 3 = 9$  or  $27 \div 9 = 3$

$4 \times 4 = 16$

division:  $16 \div 4 = 4$

$5 \times 6 = 30$

division:  $30 \div 6 = 5$  or  $30 \div 5 = 6$

Now you write three multiplication equations and their matching division facts.

a. *Answers will vary.*

b. *Answers will vary.*

c. *Answers will vary.*

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**Exercise 7** Day 7

What if you wanted to divide a dividend by a divisor and the quotient doesn't come out even? What if there is something remaining? Don't worry — when this happens, you have a remainder! This can happen in simple division equations, as well as long division.

Example:

$$\begin{array}{r} 11 \\ 2 \overline{) 23} \\ \underline{-22} \phantom{0} \\ 03 \\ \underline{\phantom{0}2} \\ 1 \end{array}$$

1. 
$$\begin{array}{r} 3 \text{ R}2 \\ 4 \overline{) 14} \\ \underline{-12} \phantom{0} \\ 02 \end{array}$$
2. 
$$\begin{array}{r} 2 \text{ R}2 \\ 5 \overline{) 12} \\ \underline{-10} \phantom{0} \\ 02 \end{array}$$
3. 
$$\begin{array}{r} 3 \text{ R}2 \\ 6 \overline{) 20} \\ \underline{-18} \phantom{0} \\ 02 \end{array}$$
4. 
$$\begin{array}{r} 4 \text{ R}2 \\ 7 \overline{) 30} \\ \underline{-28} \phantom{0} \\ 02 \end{array}$$

5. 
$$\begin{array}{r} 1 \text{ R}2 \\ 4 \overline{) 54} \\ \underline{-4} \phantom{0} \\ 14 \\ \underline{-12} \phantom{0} \\ 2 \end{array}$$
6. 
$$\begin{array}{r} 6 \text{ R}4 \\ 7 \overline{) 46} \\ \underline{-4} \phantom{0} \\ 6 \\ \underline{-4} \phantom{0} \\ 2 \end{array}$$
7. 
$$\begin{array}{r} 1 \text{ R}4 \\ 5 \overline{) 79} \\ \underline{-5} \phantom{0} \\ 29 \\ \underline{-24} \phantom{0} \\ 4 \end{array}$$
8. 
$$\begin{array}{r} 1 \text{ R}4 \\ 5 \overline{) 79} \\ \underline{-5} \phantom{0} \\ 29 \\ \underline{-24} \phantom{0} \\ 4 \end{array}$$
9. 
$$\begin{array}{r} 4 \text{ R}1 \\ 2 \overline{) 9} \\ \underline{-8} \phantom{0} \\ 1 \end{array}$$

**Use Your Words!** Explain the process you worked through in problem 5 of this exercise.

*Answers will vary but should include some mention of dividing and having a remainder left over.*

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## Exercise 8

Day 8

**Division tricks and three ways of writing division**  
 You may have learned in your previous years of math study that division has a few tricks up its sleeve, which make it easier to work out a division equation.  
 Study them below:

A number is divisible by 2 if it is an even number.

A number is divisible by 5 if the one's digit is 0 or 5.

A number is divisible by 10 if the one's digit is 0.


A number is divisible by 3 if the sum of the digits is divisible by 3.

A number is divisible by 6 if it is divisible by 2 and 3.

Any number is divisible by 8 if the last three digits are divisible by 8.

A number is divisible by 9 if the sum of the digits is divisible by 9.

A number is divisible by 4 if the last two digits are both zeros, or if they are divisible by 4.



~~872~~ 231 328 90 810 33 54 765

Using the numbers above, write them on the lines below next to all the numbers they are divisible by. The first one is done for you.

1. Divisible by 2: 872 328 90 810 54
2. Divisible by 3: 231 90 810 33 765
3. Divisible by 4: 872 328 54
4. Divisible by 5: 90 810 765
5. Divisible by 6: 90 810 54
6. Divisible by 8: 872 328
7. Divisible by 9: 90 810 54 765
8. Divisible by 10: 90 810

Optional:  
 If you are struggling with any of the divisibility rules, take the time now to study and review them. You may want to make flash cards to keep on hand throughout your school year.  
 Review of the three ways of writing a division problem.

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Math Level 6 – Lesson 1

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Name \_\_\_\_\_

## Exercise 8

Day 8

30 divided by 5 →  $5 \overline{) 30} = 6$

30 divided by 5 →  $30 \div 5 = 6$

30 divided by 5 →  $30 \div 5 = 6$

You try it! Write each division sentence in all three ways.

9. 65 divided by 5  
 $5 \overline{) 65}$       $65 \div 5 = 13$       $65 \div 5 = 13$
10. 72 divided by 8  
 $8 \overline{) 72}$       $72 \div 8 = 9$       $72 \div 8 = 9$
11. 56 divided by 2  
 $2 \overline{) 56}$       $56 \div 2 = 28$       $56 \div 2 = 28$
12. 320 divided by 3  
 $3 \overline{) 320}$       $320 \div 3 = 106 \text{ R } 2$       $320 \div 3 = 106 \text{ R } 2$
13. 90 divided by 10  
 $10 \overline{) 90}$       $90 \div 10 = 9$       $90 \div 10 = 9$
14. 81 divided by 9  
 $9 \overline{) 81}$       $81 \div 9 = 9$       $81 \div 9 = 9$
15. 40 divided by 8  
 $8 \overline{) 40}$       $40 \div 8 = 5$       $40 \div 8 = 5$

Math Level 6 – Lesson 1

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Name \_\_\_\_\_

**Exercise 9**  
Day 9

**Long division**

Today, we are going to tackle reviewing long division. To refresh your mind on the process, study the examples below. The first one shows a one-digit divisor, while the second one shows a two-digit divisor. **Remember: the steps of division are 1. divide 2. multiply 3. subtract 4. bring down the next number 5. repeat if needed.**

Examples:

$$\begin{array}{r} 7 \overline{) 32650} \\ \underline{-28} \phantom{0} \\ 46 \phantom{0} \\ \underline{-42} \phantom{0} \\ 45 \phantom{0} \\ \underline{-42} \phantom{0} \\ 30 \\ \underline{-28} \\ 2 \end{array}$$

$$\begin{array}{r} 2 \overline{) 66487} \\ \underline{-6} \phantom{0} \\ 0 \phantom{0} \\ \underline{-0} \phantom{0} \\ 48 \\ \underline{-44} \\ 47 \\ \underline{-44} \\ 3 \end{array}$$

Now you try it!

$$\begin{array}{r} 1. \quad 3 \overline{) 458} \\ \underline{-3} \phantom{0} \\ 15 \\ \underline{-15} \\ 08 \\ \underline{-06} \\ 2 \end{array}$$

$$\begin{array}{r} 2. \quad 9 \overline{) 1781} \\ \underline{-9} \phantom{0} \\ 88 \\ \underline{-81} \\ 71 \\ \underline{-63} \\ 8 \end{array}$$

$$\begin{array}{r} 3. \quad 4 \overline{) 180210} \\ \underline{-4} \phantom{0} \\ 32 \\ \underline{-32} \\ 01 \\ \underline{-0} \\ 10 \\ \underline{-8} \\ 2 \end{array}$$

$$\begin{array}{r} 4. \quad 12 \overline{) 6412} \\ \underline{-60} \phantom{0} \\ 41 \\ \underline{-36} \phantom{0} \\ 52 \\ \underline{-48} \\ 4 \end{array}$$

$$\begin{array}{r} 5. \quad 20 \overline{) 8120} \\ \underline{-80} \phantom{0} \\ 12 \\ \underline{-0} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$

$$\begin{array}{r} 6. \quad 12 \overline{) 12864} \\ \underline{-12} \phantom{0} \\ 08 \\ \underline{-0} \\ 86 \\ \underline{-84} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

Name \_\_\_\_\_

**Exercise 9**  
Day 9

You can use rounding to estimate the quotient of a division problem by first rounding both the dividend and the divisor before dividing.

Example:  $321 \div 31 =$

$300 \div 30 = 10$  ← Simply round each number to the nearest largest place value. In this case you are rounding the dividend to the hundreds place and the divisor to the tens place.

Now you try it! Round the dividend and the divisor to quickly find the estimated answer of each problem.

7.  $562 \div 12 =$

8.  $912 \div 29 =$

$600 \div 10 = 60$

$900 \div 30 = 30$

$1,200 \div 60 = 20$

10.  $469 \div 46 =$

11.  $382 \div 41 =$

$500 \div 50 = 10$

$400 \div 40 = 10$

Use **Your Words!** Explain the process you worked through in problem 2 of this exercise.

Answers will vary but should include discussion of long division.

10 Day 10  
Exercise

Name \_\_\_\_\_

**Practice and Review**  
 Please use this exercise to practice any concepts with which you may have difficulties, in preparation for your lesson quiz.

**Add:**

- $$\begin{array}{r} 452 \\ 651 \\ + 714 \\ \hline 1,817 \end{array}$$
- $$\begin{array}{r} 891 \\ + 662 \\ \hline 1,553 \end{array}$$
- $$\begin{array}{r} 123,742 \\ + 723,947 \\ \hline 847,689 \end{array}$$

**Subtract:**

- $$\begin{array}{r} 31817 \\ 34,982 \\ - 12,999 \\ \hline 21,983 \end{array}$$
- $$\begin{array}{r} 21016 \\ 723,174 \\ - 412,999 \\ \hline 310,175 \end{array}$$
- $$\begin{array}{r} 126,890,645 \\ - 101,777,944 \\ \hline 25,112,701 \end{array}$$

**Multiply:**

- $$\begin{array}{r} 823 \\ \times 28 \\ \hline 6,584 \\ + 16,460 \\ \hline 23,044 \end{array}$$
- $$\begin{array}{r} 2,196 \\ \times 327 \\ \hline 5,372 \\ + 43,920 \\ + 658,800 \\ \hline 718,092 \end{array}$$
- $$\begin{array}{r} 32,890 \\ \times 631 \\ \hline 198,890 \\ + 198,890 \\ + 198,890 \\ \hline 20,753,590 \end{array}$$

**Divide:**

- $$\begin{array}{r} 54R4 \\ 652 \overline{) 34982} \\ \underline{-60} \\ 52 \\ \underline{-48} \\ 4 \end{array}$$
- $$\begin{array}{r} 272R10 \\ 8714 \overline{) 23724} \\ \underline{-64} \\ 231 \\ \underline{-22} \\ 14 \\ \underline{-14} \\ 0 \end{array}$$
- $$\begin{array}{r} 9212R7 \\ 9212 \overline{) 8290645} \\ \underline{-65} \\ 271 \\ \underline{-260} \\ 112 \\ \underline{-65} \\ 477 \\ \underline{-455} \\ 22 \end{array}$$

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10 Day 9  
Exercise

Name \_\_\_\_\_

**13. Rounding:**  
 In this space, write the first problem of each of the previous sections in this exercise (problems 1, 4, 7, and 10). Use rounding to estimate the answer to each one.

- $$\begin{array}{r} 500 \\ 700 \\ + 700 \\ \hline 1,900 \end{array}$$
- $$\begin{array}{r} 30,000 \\ - 10,000 \\ \hline 20,000 \end{array}$$
- $$\begin{array}{r} 800 \\ \times 30 \\ \hline 24,000 \end{array}$$
- $$10,700 \div 10 = 70$$

**Oral Review:**

14. The steps of rounding  
 Underline the digit to which you are rounding. Look at the digit in the place to the right of that place. If it is 4 or less, round to the smaller amount. If it is 5 or more, round to the larger amount.

15. The steps of adding with carrying and subtracting with borrowing  
 Explained on pages 20 (adding) and 22 (subtracting).

16. The steps of multiplication with carrying  
 Explained on page 25.

17. The divisibility rules from Exercise 8  
 Explained on page 29.

18. The steps of long division, the three ways of writing a division problem  
 Explained on page 30.

19. The multiplication table to 12 x 12  
 Correct with the completed chart in the appendix.

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