# Math 3

## God's Order In Numbers

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# Math 3

## God's Order In Numbers

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# Contents

# To the Parent/Teacher

**Welcome to the third level of "God's math"!**

**Math Demonstrated in Creation.** Math shows God's wisdom, organization, and unchangeable nature—His patterns. We see God's attributes in all His creation. This course uses photos and realistic representations of God's design in creation whenever possible.

**Use of the Concrete and the Abstract.** Our goal is to start with the concrete, pointing out how math is demonstrated in God's creation first. Abstract math is then reinforced with concrete applications in science and economics. We want the student to make immediate application of math in the kitchen, the garden, business, transportation, and all of life.

**Math Intersections with Music and Games.** Since there is a strong connection between music and math, we include some of this. We also explore math and logic in games.

## How to Use this Course

This course contains approximately 150 days of content for a 30 to 36-week school year. A suggested schedule follows this introduction but may be adapted to the student as necessary.

Typically, sequential math days will alternate between lessons of new content and the review of prior concepts. New lessons are varied and presented in an engaging, wonder-filled, enthusiastic way to immerse your child happily into the wonderful world of mathematics. "Practice" days use the time-tested idea of repetition to help the child retain a firm grasp on the old.

For the teacher's and student's convenience, all the content needed for the course is contained in a single book. Special information intended for the parent/teacher is provided in orange boxes. An answer key is also included in the back of the book. The simple, engaging text of the lessons is meant to be read aloud to the child so the parent/teacher does not need to take extra time to prepare. Also, the student may be able to read the lessons without the parent/teacher's assistance, as the text is set to a third-grade reading level.

Memorization is encouraged. While the parent/teacher may still wish to use flash cards, this course assumes that the students have learned their math facts. The student will have the opportunity to work on drills for multiplication facts in this course. Without getting the math facts down, it is extremely difficult to move on in math. God has given young children an amazing ability to memorize. We hope to set your student up for a lifetime of success in math. Just as drills are the fundamentals for athletes, the basic math facts must be memorized if the student will enjoy and further engage with the art and science of mathematics. For students having a hard time with memorization, parents may allow them more access to multiplication and division tables.

The most powerful form of learning comes by life application. Children who are not given the opportunity to life-apply math concepts will find the material irrelevant and boring. Chances are they will not retain much of what they have learned. Life application helps immensely with

retention. Each chapter ends with suggestions of ways your children can apply math. Choose from several of these activities, or adapt them to provide the child with a tailor-made application of the material. Homeschoolers are much advantaged by bringing the math class into the kitchen, or including math with grocery shopping, or bringing math into any other context where real life is taking place.

We have also added "Everyday Math" exercises in which we use the second person singular, inviting the child into applying math to his or her own situation. Our goal is to make math as personally relevant as possible to the child.

Some children are naturally gifted in math and they may be capable of starting out earlier than the average. Others may not be able to finish this level in a single year. Some children may need more practice, and some less practice. We encourage respect for "the principle of individuality," especially in math. Allow the struggling child plenty of time to work with concrete manipulatives and don't worry about the schedule. For eager little mathematicians, we have included occasional "Extra Challenge" exercises. Most first and second level students will need one-on-one interaction from the parent/teacher. Once math facts are memorized and the student advances into this third level math, he or she should be able to work more independently.

## We Need Your Feedback

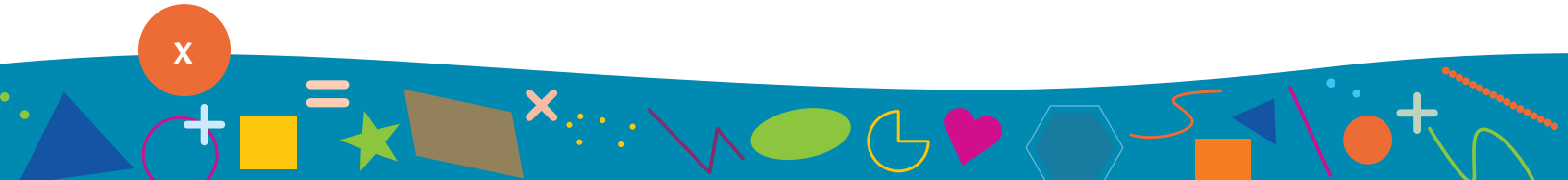
Feel free to offer any comments and suggestions to us at *mail@generations.org*. We appreciate your input!

> And these words which I command you today shall be in your heart. You shall teach them diligently to your children, and shall talk of them when you sit in your house, when you walk by the way, when you lie down, and when you rise up. You shall bind them as a sign on your hand, and they shall be as frontlets between your eyes. You shall write them on the doorposts of your house and on your gates. (Deuteronomy 6:7-9)

# Suggested Lesson Schedule

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **First Semester—First Quarter** | | | | |
| **Week 1** | Monday | Chapter 1<br>Day 1 Lesson | | |
| | Tuesday | Day 2 Lesson | | |
| | Wednesday | Day 3 Practice | | |
| | Thursday | Day 4 Practice | | |
| | Friday | | | |
| **Week 2** | Monday | Day 5 Lesson | | |
| | Tuesday | Day 6 Practice | | |
| | Wednesday | Day 7 Lesson | | |
| | Thursday | Day 8 Practice | | |
| | Friday | | | |
| **Week 3** | Monday | Day 9 Lesson | | |
| | Tuesday | Day 10 Practice | | |
| | Wednesday | Day 11 Practice | | |
| | Thursday | Day 12 Practice | | |
| | Friday | | | |
| **Week 4** | Monday | Day 13 Lesson | | |
| | Tuesday | Day 14 Practice | | |
| | Wednesday | Day 15 Lesson | | |
| | Thursday | Chapter 2<br>Day 16 Lesson | | |
| | Friday | Day 17 Practice | | |
| **Week 5** | Monday | Day 18 Lesson | | |
| | Tuesday | Day 19 Practice | | |
| | Wednesday | Day 20 Lesson | | |
| | Thursday | Day 21 Practice | | |
| | Friday | | | |

**Weekly Memory Work: go over the lessons from that week and review the Memory Work sections.*



| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **Week 6** | Monday | Day 22 Lesson | | |
| | Tuesday | Day 23 Practice | | |
| | Wednesday | Day 24 Lesson | | |
| | Thursday | Day 25 Practice | | |
| | Friday | | | |
| **Week 7** | Monday | Day 26 Practice | | |
| | Tuesday | Chapter 3<br>Day 27 Lesson | | |
| | Wednesday | Day 28 Practice | | |
| | Thursday | Day 29 Practice | | |
| | Friday | | | |
| **Week 8** | Monday | Day 30 Lesson | | |
| | Tuesday | Day 31 Lesson | | |
| | Wednesday | Day 32 Practice | | |
| | Thursday | Day 33 Lesson | | |
| | Friday | | | |
| **Week 9** | Monday | Day 34 Practice | | |
| | Tuesday | Day 35 Lesson | | |
| | Wednesday | Day 36 Practice | | |
| | Thursday | Day 37 Lesson | | |
| | Friday | | | |

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **First Semester—Second Quarter** | | | | |
| **Week 1** | Monday | Day 38 Lesson | | |
| | Tuesday | Day 39 Practice | | |
| | Wednesday | Day 40 Lesson | | |
| | Thursday | Chapter 4 Day 41 Lesson | | |
| | Friday | | | |
| **Week 2** | Monday | Day 42 Practice | | |
| | Tuesday | Day 43 Lesson | | |
| | Wednesday | Day 44 Lesson | | |
| | Thursday | Day 45 Practice | | |
| | Friday | | | |
| **Week 3** | Monday | Day 46 Lesson | | |
| | Tuesday | Day 47 Practice | | |
| | Wednesday | Day 48 Lesson | | |
| | Thursday | Day 49 Practice | | |
| | Friday | | | |
| **Week 4** | Monday | Day 50 Lesson | | |
| | Tuesday | Day 51 Practice | | |
| | Wednesday | Day 52 Lesson | | |
| | Thursday | Chapter 5<br>Day 53 Lesson | | |
| | Friday | | | |
| **Week 5** | Monday | Day 54 Practice | | |
| | Tuesday | Day 55 Lesson | | |
| | Wednesday | Day 56 Practice | | |
| | Thursday | Day 57 Lesson | | |
| | Friday | | | |

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **Week 6** | Monday | Day 58 Practice | | |
| | Tuesday | Day 59 Lesson | | |
| | Wednesday | Day 60 Practice | | |
| | Thursday | Day 61 Lesson | | |
| | Friday | | | |
| **Week 7** | Monday | Day 62 Practice | | |
| | Tuesday | Day 63 Lesson | | |
| | Wednesday | Day 64 Practice | | |
| | Thursday | Day 65 Lesson | | |
| | Friday | | | |
| **Week 8** | Monday | Chapter 6<br>Day 66 Lesson | | |
| | Tuesday | Day 67 Practice | | |
| | Wednesday | Day 68 Lesson | | |
| | Thursday | Day 69 Practice | | |
| | Friday | | | |
| **Week 9** | Monday | Day 70 Lesson | | |
| | Tuesday | Day 71 Practice | | |
| | Wednesday | Day 72 Practice | | |
| | Thursday | Day 73 Lesson | | |
| | Friday | | | |
| **Midterm Progress Notes** | | | | |
| **Grade: _____** | | | | |

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **Second Semester—Third Quarter** | | | | |
| **Week 1** | Monday | Day 74 Practice | | |
| | Tuesday | Day 75 Lesson | | |
| | Wednesday | Day 76 Practice | | |
| | Thursday | Day 77 Lesson | | |
| | Friday | | | |
| **Week 2** | Monday | Chapter 7<br>Day 78 Lesson | | |
| | Tuesday | Day 79 Practice | | |
| | Wednesday | Day 80 Lesson | | |
| | Thursday | Day 81 Practice | | |
| | Friday | | | |
| **Week 3** | Monday | Day 82 Lesson | | |
| | Tuesday | Day 83 Practice | | |
| | Wednesday | Day 84 Lesson | | |
| | Thursday | Day 85 Practice | | |
| | Friday | | | |
| **Week 4** | Monday | Day 86 Lesson | | |
| | Tuesday | Day 87 Practice | | |
| | Wednesday | Day 88 Lesson | | |
| | Thursday | Chapter 8<br>Day 89 Lesson | | |
| | Friday | | | |
| **Week 5** | Monday | Day 90 Practice | | |
| | Tuesday | Day 91 Lesson | | |
| | Wednesday | Day 92 Practice | | |
| | Thursday | Day 93 Lesson | | |
| | Friday | | | |

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **Week 6** | Monday | Day 94 Practice | | |
| | Tuesday | Day 95 Lesson | | |
| | Wednesday | Day 96 Practice | | |
| | Thursday | Day 97 Lesson | | |
| | Friday | | | |
| **Week 7** | Monday | Day 98 Practice | | |
| | Tuesday | Day 99 Lesson | | |
| | Wednesday | Day 100 Practice | | |
| | Thursday | Day 101 Lesson | | |
| | Friday | | | |
| **Week 8** | Monday | Chapter 9<br>Day 102 Lesson | | |
| | Tuesday | Day 103 Practice | | |
| | Wednesday | Day 104 Lesson | | |
| | Thursday | Day 105 Lesson | | |
| | Friday | | | |
| **Week 9** | Monday | Day 106 Practice | | |
| | Tuesday | Day 107 Lesson | | |
| | Wednesday | Day 108 Practice | | |
| | Thursday | Day 109 Lesson | | |
| | Friday | | | |

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **Second Semester—Fourth Quarter** | | | | |
| **Week 1** | Monday | Day 110 Practice | | |
| | Tuesday | Day 111 Lesson | | |
| | Wednesday | Chapter 10<br>Day 112 Lesson | | |
| | Thursday | Day 113 Practice | | |
| | Friday | | | |
| **Week 2** | Monday | Day 114 Lesson | | |
| | Tuesday | Day 115 Practice | | |
| | Wednesday | Day 116 Lesson | | |
| | Thursday | Day 117 Practice | | |
| | Friday | | | |
| **Week 3** | Monday | Day 118 Lesson | | |
| | Tuesday | Day 119 Practice | | |
| | Wednesday | Day 120 Lesson | | |
| | Thursday | Day 121 Practice | | |
| | Friday | | | |
| **Week 4** | Monday | Day 122 Lesson | | |
| | Tuesday | Chapter 11<br>Day 123 Lesson | | |
| | Wednesday | Day 124 Practice | | |
| | Thursday | Day 125 Lesson | | |
| | Friday | | | |
| **Week 5** | Monday | Day 126 Practice | | |
| | Tuesday | Day 127 Lesson | | |
| | Wednesday | Day 128 Practice | | |
| | Thursday | Day 129 Lesson | | |
| | Friday | | | |

| Date | Day | Lessons & Practice | ✓ | Progress Notes |
|---|---|---|---|---|
| **Week 6** | Monday | Day 130 Practice | | |
| | Tuesday | Day 131 Practice | | |
| | Wednesday | Day 132 Lesson | | |
| | Thursday | Chapter 12<br>Day 133 Lesson | | |
| | Friday | | | |
| **Week 7** | Monday | Day 134 Practice | | |
| | Tuesday | Day 135 Lesson | | |
| | Wednesday | Day 136 Practice | | |
| | Thursday | Day 137 Lesson | | |
| | Friday | | | |
| **Week 8** | Monday | Day 138 Practice | | |
| | Tuesday | Day 139 Lesson | | |
| | Wednesday | Day 140 Practice | | |
| | Thursday | Day 141 Lesson | | |
| | Friday | | | |
| **Week 9** | Monday | Day 142 Practice | | |
| | Tuesday | Day 143 Lesson | | |
| | Wednesday | Day 144 Practice | | |
| | Thursday | | | |
| | Friday | | | |
| **Progress Notes** | | | | |
| **Final Grade: _____** | | | | |

God multiplies animals
when He gives babies
to mama bears.

CHAPTER 1

# More Numbers Than You Can Imagine!

# Welcome to Math 3!

> "And Bezalel and Aholiab, and every gifted artisan in whom the Lord has put wisdom and understanding, to know how to do all manner of work for the service of the sanctuary, shall do according to all that the Lord has commanded." Then Moses called Bezalel and Aholiab, and every gifted artisan in whose heart the Lord had put wisdom, everyone whose heart was stirred, to come and do the work. (Exodus 36:1-2)

Bezalel and Aholiab were creative builders who helped build the tabernacle for the children of Israel. God appreciates skill. He gave special wisdom and understanding to these men so they would be skilled to do beautiful work on the house of worship. God is all wise, and He shares wisdom with us. He helps us to learn, and He encourages us to become skillful at our work. As you step through this next level of math, it is our hope and prayer that you will become more skillful at math. You will learn to add, subtract, multiply, and divide more skillfully and quickly.

You will learn more about fractions, shapes, and measurements. You will learn a little about using computers, calculators, spreadsheets, and coordinates. Math must be useful in the way that hammers and screwdrivers are useful. Remember that math is a tool you can use to study the world, to measure the world, to compare things, and to build things. Math will help you to cook and bake in the kitchen. Math gives you wisdom when you buy and sell things. Math helps you to understand travel, animal care, weather forecasts, and gardening.

This chapter will help you review some lessons you learned in Math 1 and 2.

# Review DAY 1

Do these exercises, but watch the signs. Will you multiply (x)? Will you divide (÷)? Will you add (+)? Or will you subtract (–)?

Correct the wrong answers below. Cross out the wrong answers and write the correct answers. The first one is done for you.

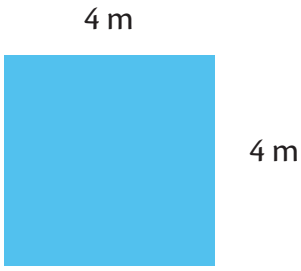
| | | | |
|---|---|---|---|
| 1. 3 x 4 = ~~7~~ | 12 | 5. 10 – 1 = 11 | |
| 2. 8 ÷ 1 = 1 | | 6. 12 – 4 = 16 | |
| 3. 7 x 2 = 9 | | 7. 4 x 2 = 6 | |
| 4. 6 ÷ 2 = 12 | | 8. 10 ÷ 1 = 11 | |

Find the area of the shapes below.

9.


___ x ___ = ___ square m

11.

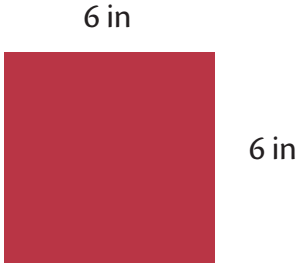



___ x ___ = ___ square m

10.

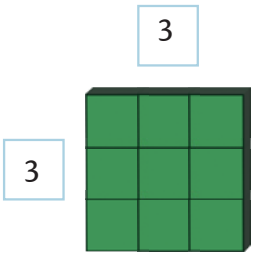

___ x ___ = ___ square in

12.



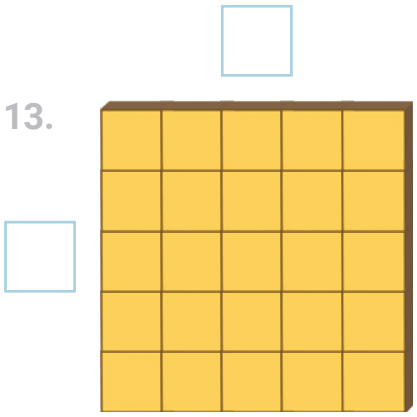

___ x ___ = ___ square in

For each block shape below, write the number of its columns and the number of its rows in the boxes. Then fill in its equation. See example at right.



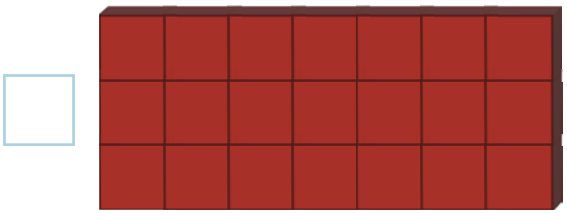

3 x 3 = 9

13.



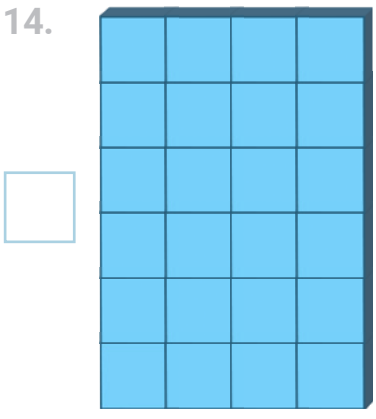
___ x ___ = ___

15.



___ x ___ = ___

14.



___ x ___ = ___

16.

___ x ___ = ___

# Counting Hundreds, Thousands, and Millions

DAY 2

> The LORD builds up Jerusalem;
> He gathers together the outcasts of Israel.
> He heals the brokenhearted
> And binds up their wounds.
> He counts the number of the stars;
> He calls them all by name.
> Great is our Lord, and mighty in power;
> His understanding is infinite.
> The LORD lifts up the humble;
> He casts the wicked down to the ground. (Psalm 147:2-6)

God counts the stars. There are more stars in the sky than we could ever count. But the Lord knows all of them by name. That's a lot of names!

There are so many stars that we would need very big numbers to count all of them! This lesson will introduce bigger and bigger numbers.

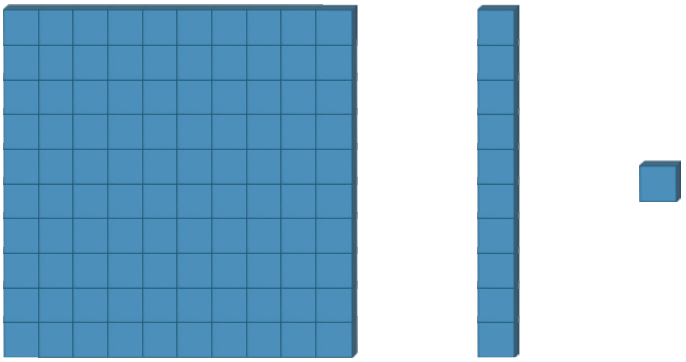
There is something inside boys and girls that wants to know huge numbers—you want to count the leaves on a tree and the stars in the sky. You want to tell others how many there are! Imagine telling your friend, "Can you believe there are almost 5,000 needles on that little tree? God must be powerful and wise to make such a tree!"

With big numbers, you need special patterns. You already know quite a lot about these patterns. Now you just need to take it to the next level. Look at the following exercises:

| | | |
|---|---|---|
| 1. 19 + 1 = | 3. 95 + 5 = | 5. 298 + 2 = |
| 2. 29 + 1 = | 4. 99 + 1 = | 6. 499 + 1 = |

First, look at the big number in each equation. Can you see that 19 is almost 20? Can you see that 95 is almost as much as 100? Can you see that 298 is almost as high as 300?

Let's review place values. In the blocks below, the single block is the smallest chunk. It's all the way to the right, in the 1s place. Then comes the 10 chunk in the 10s place. Then, on the left, we see the 100 chunk in the 100s place.



When we add 19 + 1, we first add everything in the 1s place together. That's 9 plus 1. We now have 10 1s. Then it's like trading the ten 1s for one chunk of 10. The 1s place goes to zero, and we have two chunks of 10. We have a 2 in the 10s place. With a 2 in the 10s place and a 0 in the 1s place, we see that our answer is 20.

To add 95 + 5, we first add the 5 + 5 because they are both in the 1s place. Just like before, the 1s place adds to 10. So we will write a zero in the 1s place and add 1 chunk of 10 to the 10s place. When we add that 1 chunk of 10 to the 9 chunks of 10 already in the 10s place, we get 10 chunks of 10. If we were using blocks, we could trade all 10 chunks of 10 for 1 chunk of 100. But if we are writing, we can just write a zero in the 10s place and a 1 in the 100s place. That will show the answer of 100.

When we add 2 to 298, the 1s place again becomes zero. We will again add a 10s chunk to the 10s place. But we already have 9 chunks of 10 in the 10s place. Another chunk of 10, will make 10 chunks of 10 in the 10s place. What do we do? We trade those 10 chunks of 10 for a chunk of 100. That means we would write a zero in the 10s place and add another chunk of 100 to the 100s place. We are adding 1 chunk of 100 to the 2 chunks of 100 that are already there. That makes an answer of 300! This is shown a different way below.

| | | | | |
|---|---|---|---|---|
| 8 chunks of 1 | + | 2 chunks of 1 | = | 10 chunks of 1 |
| 9 chunks of 10 | + | 1 more chunk of 10 | = | 10 chunks of 10 |
| 2 chunks of 100 | + | 1 more chunk of 100 | = | 3 chunks of 100 |

Now let's do the exercises on the previous page together. Think of the numbers as blocks.

Now, here is a very big number. It's a gigantic number!

1234567

Here's the way we usually write large numbers: Use commas to break up groups of 3 digits, starting from the right. Our number should look like this:

1,234,567

Do you see how we have started from the right and put a comma after each group of 3 digits? It just makes life easier! Can you follow that pattern and add commas to this ginormous number?

7. 3 4 5 3 4 6 2 3 4 5 7 2

Now, let's add 1 more to each of the numbers below. When you do, you'll find that you jump the number up so it has another place value on its left. Fill out the following chart. Recite these big numbers, with a little help from your parent/teacher.

| | | | |
|---|---|---|---|
| | 9 + 1 = | 10 | Ten |
| | 99 + 1 = | 100 | One hundred |
| | 999 + 1 = | 1,000 | One thousand |
| 8. | 9999 + 1 = | | Ten thousand |
| 9. | 99999 + 1 = | | One hundred thousand |
| 10. | 999999 + 1 = | | One million |

Do you see how hard it is to read the large numbers? Commas help!

Now, let's look at this big number: 1,234,567

How many 1s are there? How many 10s? How many 100s?

Imagine a box filled with 1,234,567 candies.

Place this number in the following table: 1,234,567

| Million (1,000,000) | Hundred Thousand (100,000) | Ten-Thousand (10,000) | Thousand (1,000) | Hundred (100) | Ten (10) | One (1) |
|---|---|---|---|---|---|---|
| | | | | | | |

How many 1s of candies are there? How many 10s of candies are there? How many 100s of candies are there? How many 1000s of candies are there?

How do we read this gigantic number out loud? We read numbers from left to right. Here we go!

**One million two hundred thirty-four thousand five hundred sixty-seven**

## Student Exercises

Can you fill in this place value chart for some more big numbers?

| | | 1,000,000 | 100,000 | 10,000 | 1,000 | 100 | 10 | 1 |
|---|---|---|---|---|---|---|---|---|
| 1. | 1,234,567 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | 32,431 | | | | | | | |
| 3. | 145,943 | | | | | | | |
| 4. | 95,703 | | | | | | | |
| 5. | 999,999 | | | | | | | |
| 6. | 1,999,991 | | | | | | | |
| 7. | 458,392 | | | | | | | |
| 8. | 1,010,010 | | | | | | | |
| 9. | 9,999,999 | | | | | | | |
| 10. | 8,275,384 | | | | | | | |

Add these double digit numbers. Remember to add the ones column first, and then the tens.

11.

| | | |
|---|---|---|
| | 2 | 1 |
| + | 1 | 1 |
| | | |

13.

| | | |
|---|---|---|
| | 3 | 3 |
| + | 4 | 4 |
| | | |

15.

| | | |
|---|---|---|
| | 1 | 2 |
| + | 3 | 4 |
| | | |

17.

| | | |
|---|---|---|
| | 2 | 1 |
| + | 4 | 5 |
| | | |

12.

| | | |
|---|---|---|
| | 4 | 3 |
| + | 3 | 4 |
| | | |

14.

| | | |
|---|---|---|
| | 5 | 6 |
| + | 3 | 3 |
| | | |

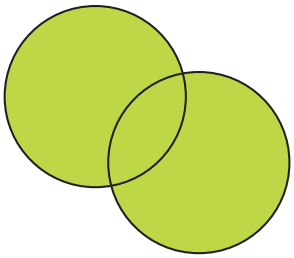
16.

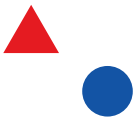
| | | |
|---|---|---|
| | 1 | 8 |
| + | 7 | 1 |
| | | |

18.

| | | |
|---|---|---|
| | 6 | 6 |
| + | 2 | 3 |
| | | |

Let's explore God's patterns with sets. In these exercises, draw the new set that's formed when the members of the first sets are united. Remember, united sets (unions) are all of the members in the combined sets, without writing a repeated member twice. The symbol for union is U. In 24-26, draw brackets around your new sets.



| | | | | | |
|---|---|---|---|---|---|
| 19. |  | U |  | = |  |
| 20. |  | U |  | = | { } |
| 21. |  | U |  | = | { } |
| 22. |  | U |  | = | { } |
| 23. |  | U |  | = | { } |
| 24. | {1,2} U {3,4} = | | | | |
| 25. | {1,2} U {2,3} = | | | | |
| 26. | {1,2} U {1,2} = | | | | |

"Now the multitude of those who believed were of one heart and one soul; neither did anyone say that any of the things he possessed was his own, but they had all things in common." (Acts 4:32)

# Practice DAY 3

Here is some practice with addition and subtraction!

1.

| | | |
|---|---|---|
| | | 5 |
| + | | 9 |

2.

| | | |
|---|---|---|
| | 2 | 3 |
| + | 4 | 6 |

3.

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| + | 5 | 4 | 2 |

4.

| | | | |
|---|---|---|---|
| | 1 | 1 | 1 |
| + | 1 | 8 | 1 |

5.

| | |
|---|---|
| | 4 |
| + | 8 |

6.

| | | | |
|---|---|---|---|
| | 4 | 2 | 1 |
| + | 5 | 1 | 1 |

7.

| | | | |
|---|---|---|---|
| | 2 | 1 | 7 |
| + | 1 | 2 | 1 |

8.

| | | |
|---|---|---|
| | 1 | 6 |
| – | | 8 |

9.

| | | |
|---|---|---|
| | 4 | 5 |
| – | 2 | 1 |

10.

| | | |
|---|---|---|
| | 5 | 7 |
| – | 1 | 4 |

11.

| | | | |
|---|---|---|---|
| | 3 | 9 | 7 |
| – | 1 | 0 | 1 |

12.

| | | |
|---|---|---|
| | 1 | 7 |
| – | | 5 |

13.

| | | |
|---|---|---|
| | 4 | 5 |
| – | 1 | 4 |

14.

| | | |
|---|---|---|
| | 5 | 7 |
| – | 1 | 7 |

15.

| | | | |
|---|---|---|---|
| | 8 | 5 | 2 |
| – | 3 | 4 | 2 |

When you are learning multiplication facts, do you sometimes forget one of them? That's when you use a multiplication chart to find the answer. You do this by finding one of the numbers you are multiplying on the top of the chart and finding the other number on the side of the chart. Then you use your fingers to travel down the chart from the top number and sideways from the side number until your fingers meet. Where your fingers meet is your answer.

Did you know that you can also use a multiplication chart to help you find the answer to a division fact? Division facts have a large number that is being divided by a smaller number. Start by first putting your finger on the top of the chart, right on the smaller number you are dividing by. Now travel down until your finger hits the large number you are dividing. From that large number, travel sideways until you arrive at the number on the side of the chart. That number is your answer.

Here are some math questions. By now you know that they are called equations. Try to find the number to answer the question.

16. What plus 6 equals 15? ☐ + 6 = 15

17. What plus 8 equals 14? ☐ + 8 = 14

18. What minus 5 equals 9? ☐ − 5 = 9

19. What minus 7 equals 10? ☐ − 7 = 10

20. What times 3 equals 12? ☐ × 3 = 12

21. What times 5 equals 10? ☐ × 5 = 10

22. What divided by 2 equals 3? ☐ ÷ 2 = 3

23. What divided by 4 equals 1? ☐ ÷ 4 = 1

# Practice DAY 4

Add these numbers as fast as you can. The first one shows how you can break the work into steps. There is room under each problem to write out your steps if you want to.

1. 5 + 2 + 3 + 2 =
   **7** + 3 + 2 =
   **10** + 2 = 12

2. 3 + 5 + 4 = ☐

3. 5 + 3 + 4 + 5 = ☐

4. 2 + 2 + 3 + 3 + 4 + 4 = ☐

5. 10 + 10 + 10 + 3 = ☐

6. 6 + 7 + 5 + 4 + 2 = ☐

7. 2 + 3 + 4 + 5 + 2 + 1 + 1 = ☐

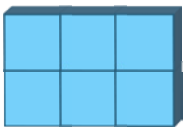
8. 9 +8 + 2 + 3 + 6 = ☐

9. 2 + 4 + 3 + 5 + 6 + 7 = ☐

10. 1 + 1 +1 +1 + 2 + 2 +3 + 4 = ☐

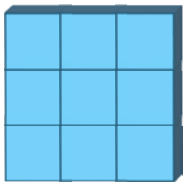
Let's practice division:

11. How many 3s can you find in these 6 blocks? Divide up these 6 blocks into groups of 3.



$6 \div 3 =$ ☐

12. How many 3s can you see in these 9 blocks? Divide up these 9 blocks into 3s.

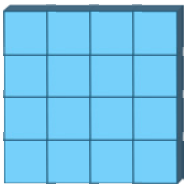


$9 \div 3 =$ ☐

13. How many 2s can you see in these 20 blocks? Divide up these 20 blocks into 2s.

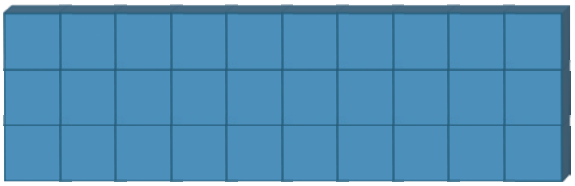
$20 \div 2 =$ ☐

14. How many 4s can you see in these 16 blocks? Divide up these 16 blocks into 4s.



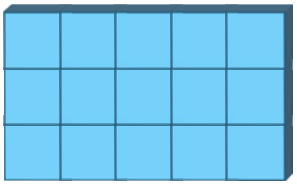
$16 \div 4 =$ ☐

15. How many 10s can you see in these 30 blocks?



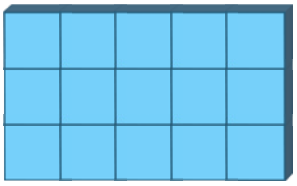
$30 \div 10 =$ ☐

16. How many 3s can you find in these 15 blocks?



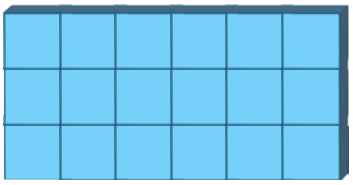
$15 \div 3 =$ ☐

17. How many 5s can you find in these 15 blocks?



$15 \div 5 =$ ☐

18. How many 6s can you find in these 18 blocks?



$18 \div 6 =$ ☐

# Adding More Big Numbers

DAY 5

> Be diligent to know the state of your flocks,
> And attend to your herds; For riches are not forever,
> Nor does a crown endure to all generations. (Proverbs 27:23-24)

God has given each of us certain things to take care of. If you don't keep track of your sheep, goats, and cows, they will wander away. We are supposed to be good stewards. We are to take good care of the things God has put under our care.

Shepherds need to be able to count their sheep and add up their goats. Farmers keep track of their fruit and vegetable plants and their trees. Adding and multiplying help with this.

While some people will use calculators to add up things, this can be a slow way to do it. Sometimes we need to be able to add things quickly using our own minds. Often we will have to add up many numbers. So let's make sure that we can do this well.

***How many chicks can you count in this brooding box?***

Pretend that your family is going into raising chickens. You have three brooding boxes. You have counted 42, 35, and 48 chicks in the three boxes. Now, how many chicks do you have altogether?

Here is how to add these up. (See below) First add the 2 + 5 in the 1s column. That equals 7. Keep that in your mind, or write it down on the right side. Now you will need to add the 7 to the 8. That equals 15. Write down the 5 under the line in the 1s place, and carry the 1.

Now add the 10s column. Add 1+4+3+4. First add 1 and 4 together to get 5. Then add the 5 to the 3 to get 8. Add the 8 to the 4 to get 12. Write the 12 under the line, to the left of the 5. Your answer is 125. Notice that we did not have to carry the 1 into the hundreds place. There were no other hundreds to add, so we just wrote the 1 in the hundreds place of the answer. As you add the numbers in the 10s column, you can write the answers on the left side.

| | | | | |
|---|---|---|---|---|
| | | 1 | | |
| 5 | | 4 | 2 | |
| 8 | | 3 | 5 | 7 |
| 12 | + | 4 | 8 | 15 |
| | 1 | 2 | 5 | |

Now try one for yourself! Add these chicks together! You can add them in your mind, or you can write the numbers in the boxes provided.

1.

| Carry | 1 | | |
|---|---|---|---|
| | 3 | 5 | |
| | 2 | 2 | |
| + | 1 | 4 | |
| | | | |

2.

| Carry | 1 | | |
|---|---|---|---|
| | 1 | 7 | |
| | 2 | 3 | |
| + | 5 | 7 | |
| | | | |

3.

| Carry | 1 | | |
|---|---|---|---|
| | 6 | 8 | |
| | 2 | 1 | |
| + | 3 | 5 | |
| | | | |

## Student Exercises

Try these addition exercises. Some of the numbers to carry have been provided as hints for you.

1.

| | 1 | |
|---|---|---|
| | 5 | 1 |
| | 3 | 5 |
| + | 9 | 9 |
| | | |

2.

| | 1 | |
|---|---|---|
| | 2 | 5 |
| | 3 | 7 |
| + | 4 | 1 |
| | | |

3.

| | 1 | |
|---|---|---|
| | 8 | 2 |
| | 3 | 3 |
| + | 2 | 6 |
| | | |

4.

| | 1 | | |
|---|---|---|---|
| | 1 | 3 | |
| | 6 | 7 | |
| + | 1 | 9 | |
| | | | |

5.

| | 1 | | |
|---|---|---|---|
| | 1 | 4 | |
| | 2 | 6 | |
| + | 1 | 5 | |
| | | | |

6.

| | | | |
|---|---|---|---|
| | 2 | 4 | |
| | 4 | 1 | |
| + | | 3 | |
| | | | |

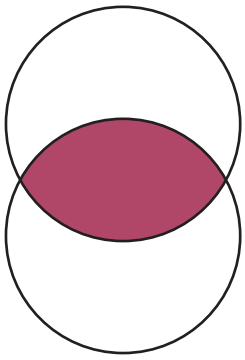
7.

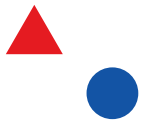
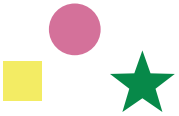
| | | | |
|---|---|---|---|
| | 7 | 2 | |
| | 5 | 2 | |
| + | 4 | 8 | |
| | | | |

8.

| | | | |
|---|---|---|---|
| | 6 | 5 | |
| | 3 | 6 | |
| + | 1 | 1 | |
| | | | |

**Set Intersection.** Let's explore God's patterns with sets. Let's see how these sets come together to create new sets. Remember, intersections ask, "What do these two sets have in common?" The ∩ is the intersection symbol. If there is no intersection write "empty."



| | | | | | |
|---|---|---|---|---|---|
| 9. |  | ∩ |  | = | |
| 10. |  | ∩ |  | = | |
| 11. |  | ∩ |  | = | |
| 12. |  | ∩ |  | = | |
| 13. |  | ∩ |  | = | |
| 14. | {1, 2} ∩ {3, 4} = { | | | | } |
| 15. | {1, 2} ∩ {2, 3} = { | | | | } |
| 16. | {1, 2} ∩ {1, 2} = { | | | | } |

# DAY 6 Practice

Check out each of these numbers and answer the following questions. This will help you see how big the numbers are, and pretty soon you will be ready to add, subtract, and do all sorts of things with them! Thank You, God! For each exercise, add commas to help you read the number more easily.

1. **26783**

How many 10s? _____

How many 1,000s? _____

How many 10,000s? _____

2. **3152345**

How many 1s? _____

How many 100s? _____

How many 100,000s? _____

3. **708310743**

How many 100s? _____

How many 1,000s? _____

How many 1,000,000s? _____

4. **35781**

How many 10s? _____

How many 1,000s? _____

How many 10,000s? _____

5. **56921**

How many 10s? _____

How many 100s? _____

How many 10,000s? _____

6. **125690**

How many 1s? _____

How many 1,000s? _____

How many 10,000s? _____

7. **347552**

How many 10s? _____

How many 10,000s? _____

How many 1,000,000s? _____

8. **1067254**

How many 1s? _____

How many 100s? _____

How many 10,000s? _____

Now for more practice with multiplication. Try answering these from memory.

| | | | |
|---|---|---|---|
| 9. $3 \times 4 =$ | 11. $2 \times 5 =$ | 13. $7 \times 8 =$ | 15. $8 \times 5 =$ |
| 10. $6 \times 1 =$ | 12. $7 \times 3 =$ | 14. $5 \times 6 =$ | 16. $8 \times 9 =$ |