

Incoming 8th Grade Summer Math “Packet”

Happy Summer Break!

The Incoming 8th Grade Math “Packet” is an expectation of proficiency in certain skills which will help you immensely in 8th Grade Mathematics and beyond. These are skills which have been taught before (possibly many times) and will be ASSUMED that you are proficient with them.

- Add, subtract, multiply, and divide whole numbers, fractions, decimals, and integers
- Plotting points on a coordinate grid
- Converting amongst fractions, decimals, and percents
- Order of Operations (PEMDAS)
- Area, perimeter, circumference, and volume of basic geometric shapes and figures (rectangles, triangles, parallelograms, circles, prisms, cylinders)
- One-step equations, two-step equations, and combining like terms
- Perfect square roots
- Simplifying Square Roots (Accelerated only)
- Graph linear equations (Accelerated only)
- Simplify square roots (Accelerated only)

One amazing resource which can help with proficiencies is **khanacademy.org**. It is a free website with thousands of short videos and hundreds of different Exercise sets for math skills. Students can create free accounts through a parent account or with their own email. Instructions on how to start your own account is on the 4th page.

Recommended exercises:

Search for any exercises with addition, subtraction, multiplication, or division of whole numbers, fractions, negative numbers (integers), or decimals. One step equations and two step equations are an integral part of Algebra, so please practice those as well. There are also exercises in area of squares and rectangles, circles, parallelograms, and triangles. Your best bet is to earn at least 50% (go for 100%!) on the Pre-algebra mission (see next page for starting the Pre-algebra mission).

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The screenshot shows the Khan Academy interface for the skill 'Dividing decimals 4'. At the top, there is a navigation bar with 'Khan Academy', 'Learn', 'Coach', and a search bar. Below this, the main header includes '8th Grade Math', 'Arithmetic Operations', and the current skill 'Dividing decimals 4'. A progress indicator shows 'Get 5 correct in a row' with five green checkmarks. On the left, a sidebar lists related skills: 'Dividing decimals with hundredths', 'Dividing decimals', 'Dividing decimal', and 'Dividing decimals 4' (which is highlighted). The main content area displays a long division problem: $64 \overline{)32512}$. To the right of the problem, there is an 'Answer' input field, a 'Check Answer' button, a 'Show me how' button, and a 'Stuck? Watch a video.' section with a video thumbnail and a 'Request a review on this question' link at the bottom right.

Each Exercise set has 5 or more exercises in it. It will continue to give you exercises until you have completed 5 in a row correctly. You will achieve **“PRACTICED”** for that skill.

To obtain “MASTERY” for these skills, you must do the following:

- 1) Look on your home screen at khanacademy.org.
- 2) There is a line for “Mastery Challenge.” This will mix up all your “PRACTICED” skills and randomly challenge you in them. Click on the “Start” button to begin your “Mastery Challenge”
- 3) From “PRACTICED,” you can achieve: “LEVEL 1”, “LEVEL 2”, then “MASTERY.” This shows that you can recall these math skills quickly and in random orders.

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The screenshot shows the 'The World of Math' mission interface. At the top, it displays 'CURRENT MISSION The World of Math' and '226,118 energy points'. Below this, there are two main sections: 'SKILLS UP NEXT FOR YOU' and 'MISSION PROGRESS'. The 'SKILLS UP NEXT FOR YOU' section features a 'MASTERY CHALLENGE' button with a 'Start' button, and a list of skills with 'Practice' buttons: 'Count to 100', 'Comparing size', 'Count from any number', 'Arithmetic sequences 1', and 'Scientific notation intuition'. The 'MISSION PROGRESS' section shows a grid of blue squares representing progress on various skills, with 'Practice skills: 0 / 5' and 'Mastery challenges: 0 / 5' displayed above it.

IT IS MORE IMPORTANT TO ANSWER THE QUESTION CORRECTLY THAN IT IS TO FINISH THE EXERCISE SET QUICKLY!

If you get stuck on an exercise set, look at the left side of the screen. There should be several video topics there to review (if necessary). There are also hints for each question as well.

There are also badges that students earn by quickly answering questions correctly, perseverance, watching videos, etc. See how many badges you can earn!

Pre-algebra Mission:

- Search pre-algebra math in the search bar
- Click on the link “pre-algebra math | Khan Academy”
- Click “Mission”
- Start the Mission warm-up and use this page to work on the pre-algebra mission

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Students may have an account through a parent’s account by creating a child account (multiple child accounts can be created with one parent account), or students may have their own account.

CREATING AN ACCOUNT

If neither you nor your child has a khanacademy.org account already in existence.

Go to khanacademy.org

In the middle of the page underneath the “Sign in with Google” bar, there are 3 options: “sign up with email,” “Teachers, start here,” and “Parents, start here”. Choose either “sign up with email,” or “Parents, start here.”

IF YOU CHOOSE “SIGN UP WITH EMAIL,” put in your (or your child’s) First name, last name, email address, and birthdate.

IF YOU CHOOSE “PARENTS, START HERE,” you can sign up using google, facebook (not recommended), or another email with “Or sign up using email.” Input the proper information.

CREATING A CHILD’S ACCOUNT

If a parent has a khanacademy.org account OR just created one using the above steps.

- Sign in to your account.
- On the top left corner should be a link that says “Coach.” Click it.
- Click on “Child Accounts” link on the left side.
- Click the “Create Child Account” button.
- Fill in the information needed.
 - Please note that the child’s password can only be changed by you.

****The benefit of creating a child’s account through your own is you have access to see your child’s progress in the skill sets.****

LINKING YOUR ACCOUNT

If a student has his/her own account and has yet to linked it to his/her parent.

- 1) Sign in to your account.
- 2) Click on your name on the top right side.
- 3) Highlight and click your name again from the drop down menu.
- 4) Click on “Coaches” on the left side of the screen. It is the last link on the left side.
- 5) Type in your parent’s email (used for the parent account) as the coach’s ID and press the button to add your parent as the coach.

****Already existing usernames can be used IF the username can identify the student without ambiguity****

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5 Minute Challenge

If you choose to try 5 minute challenges to hone your math skills, try following these instructions:

1. Using a worksheet or a summer math book, find a page or skill to review.
2. Set a timer for 5 minutes.
3. Start the timer and see how many problems you can complete in 5 minutes with work!
4. After the 5 minutes is up, check your answers. Most worksheets you find online or summer math books have answers in them.
5. Record the number of questions you answered correctly. Try to beat that next time.
6. Review the questions you did not answer correctly. Determine why it is not correct.
7. Repeat steps 1-6 once more with the same skill set. Try to beat your previous score.

Resources:

If you do not want to get a math summer book, you can google search for a worksheet (ex: google search “Adding fractions worksheet”). Most of these worksheets also have answer sheets so you can self-check your answers.

There will be some 5 minute challenges posted on Mr. Dalzell’s blog periodically during the summer.

5-minute Benchmarks:

- at least 6 addition, subtraction, multiplication, or division of whole numbers, decimals, and fractions/mixed numbers with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- at least 6 order of operations questions with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- at least 6 perimeter, circumference, area, or volume questions with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 12 plotting on a coordinate grid with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 8 conversions amongst fractions, decimals, and percents with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 12 one-step equations with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 8 two-step equations with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 8 combining like terms with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 8 perfect square questions with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).
- At least 6 simplifying square roots questions with at least 83% accuracy (on average, only 1 incorrect for every 5 correct).