All students who will be in 9th and 10th grade for the 2016-17 school year are expected to spend about 10 hours doing math practice and review throughout the summer. Westtown has subscribed to an online service, IXL, to give each student strong practice problems with immediate feedback. Each student who will be doing summer work has been assigned a username and a password in IXL. ([www.IXL.com](http://www.IXL.com))

- Username: FirstNameLastName403
- Password: MathRocks

Note: The username uses the form of your name that is used for your Westtown School email address (without the dot). For example: susanwaterhouse403

80-100% proficiency should be achieved in each skill area. Students are welcome to work for longer and to focus on particular skills as needed.

All students are also encouraged to engage in math enrichment activities. Click [here](http://www.IXL.com) for a list of ideas.

**Click on the course the math department has placed you in for the fall to get your list of practice skill areas.**

- **Algebra 1** (Algebra 1 and Algebra 1 Advanced)
- **Geometry** (Geometry or Geometry Advanced)
- **Algebra 2** (including Algebra 2, Algebra 2 Adv or Algebra 2 and Trig)
- **Precalculus** or **Precalculus Adv**
- **Calculus 1 or Calculus 1 Adv**
- **Calculus 2 Adv** (Not an IXL assignment.)

We encourage you to take a break from school sessions and begin working in early July about an hour each week to keep your math skills active throughout the summer.
Algebra 1

Students who are entering Algebra 1 or Algebra 1 Adv should practice the following sections from the 8th grade section of IXL. Pay particular attention to working with fractions. Please complete as many skills as possible to at least 80% proficiency. (www.IXL.com)

D.2-D.8
E.1-E.3, E.5-E.6, E.9
F.5
J.1
J.2
S.8

Back to top

Geometry

Students who are entering Geometry should practice the following Algebra 1 skills this summer from the Algebra 1(A1) section of IXL, pay particular attention to working with fractions. Please complete as many skills as possible to at least 80% proficiency.

A 2, 5, 6, 7
B 4, 5, 7
C 1, 2, 5
D 1
G1
H 1, 2, 3, 4
I 2
J 9
K 6, 8, 10
V 2
AA 1, 2, 3, 4
BB 6
EE 1, 2, 3, 4
GG 2, 3, 4, 6, 7
KK 1

Students are welcome to work any other problems in the Algebra 1 (A1) or 8th grade sections as well.  Back to top
Algebra 2

Students who are entering Algebra 2 should practice the following Algebra 1 and Geometry skills this summer from the Algebra 1(A1) section of IXL, pay particular attention to working with fractions, lines and solving equations. Please complete as many skills as possible to at least 80% proficiency.

Required Skills:

AA2, AA3  Factoring Quadratic Polynomials
B3      Evaluate Expressions
B4      Add rational numbers
G1      Coordinate Plane
I5, I6  Solutions to Equations
K9      Linear Inequalities
S3, S18 Slope and Point-Slope form

Additional skills that students may choose to practice:

From the Geometry (G) Section:

S1-S9
A1-A9
B8
E2-E7
Q1, Q4
T9

From the Algebra 1 (A1) Section

A7
S1-S21

Back to top
Precalculus

Students who have completed Algebra 2 and are preparing to take Precalculus in the fall should practice the following skills from the Algebra 2 (A2) section of IXL this summer. Particular attention should be paid to the following skills:

B5    Solve Equations with several variables
D1, D8  Domain, Range and lines
E10 E11  Systems of equations
H6    Operations with complex numbers
I1, I7  Factoring
J4, J11  Quadratics
K1 K2 K3  Polynomials
L5, L13  Radicals
N4, N7  Rational expressions
R1, R3, R4  Logarithms
S1, S2, S3  Exponentials

For extra practice see list below.

Students who have completed Algebra 2 and are preparing to take Precalculus Advanced in the fall should practice the following skills from the Algebra 2 (A2) section of IXL this summer. Particular attention should be paid to the following skills

K4-K6
N1
P
R1, R3, R4, R7-R10
S1-S5, S7-S9, S12, S13

Students in Precalculus or Precalculus Adv who wish to do additional practice, or who are moving up a level, should work on skills from the following sections:

A
B
C
D
E1-E11
F1-F4
H
I2, I4-7
J
K1- K3
Calculus 1 or Calculus 1 Advanced

9th and 10th grade students entering Calculus 1 or Calculus 1 Advanced should focus on math enrichment activities listed here. You may also choose to work any of the following sections from the Precalculus (PC) section of IXL

A
E
F9, F12
K
M7, M9
N9
Calculus 2 Advanced

If you are moving from Calculus 1 to Calculus 2 Adv, there are several topics that you need to study on your own this summer. T. Susan Waterhouse has previewed these topics in class, and some students may need to do additional work beyond the in-class preview in order to be ready for the fall. Expect a short quiz on these topics in the fall.

Integration by Parts: Section 6.3 in textbook

Video Series with some practice problems


A textbook style explanation with worked examples.

http://tutorial.math.lamar.edu/Classes/CalcII/IntegrationByParts.aspx

https://www.math.hmc.edu/calculus/tutorials/int_by_parts/

L'Hopital's Rule: Section 8.1 in textbook

Video Series with a bit of practice

https://www.khanacademy.org/math/differential-calculus/derivative_applications/lhopital_rule

Textbook style explanation

http://tutorial.math.lamar.edu/Classes/CalcI/LHospitalsRule.aspx

Further Practice- Volumes of revolutions and Volumes by cylindrical shells: Section 7.3 in textbook.

Video series with a bit of practice:

https://www.khanacademy.org/math/integral-calculus/solid-revolution-topic

Textbook style explanation

http://tutorial.math.lamar.edu/Classes/CalcI/VolumeWithRings.aspx

Back to top
General Math Enrichment Activities  (Fun things…)

Students enrolled in advanced math courses at Westtown School are invited to engage in the following types of activities to continue to grow as problem solvers and mathematicians over the summer…

- Read a math or computer science related book. For example: Flatland by A Square, Math Girls series by Hiroshi Yuki., The Simpsons and Their Mathematical Secrets or The Code Book or another book by Simon Singh etc.
- Go to a science or math museum
- Play board games
- Learn something about computer programming. (Use a free online tutorial to learn the basics of Scratch, Python, C++, Javascript or PHP. These tutorials vary in length from 4 to 15 hours.)
- Help younger kids learn about fun math and science topics.
- Help with a building or home improvement project.
- Create math animations with Geogebra
- Learn origami
- Track 5 stocks from different industries daily, including prices, volumes, and market news; graph data daily in Excel, and learn about correlations.
- Learn about mapping GIS data and do geocaching
- Solve puzzles (jigsaw, Kenken, logic etc)

Come back to school ready to talk about what you learned or experienced with your classmates.

Back to top