

Homework in Math



What does the syllabus say?

To receive full points, a homework assignment must:

- ▶ *Be Complete.* All questions should be answered and *all work shown*.
- ▶ *Checked and Corrected.* Answer keys are available and should be checked periodically while working on the assignment. Incorrect answers should be marked and show evidence of corrections.
- ▶ *In an Acceptable Format.* All homework should be completed on a separate sheet of paper (graphs may be drawn on the worksheet) in a legible and organized fashion. No “scraggly” edges to the paper. Assignments written in pen will not be accepted.
- ▶ *Be on Time.* Late assignments will be accepted for half-credit until the end of the unit, after which they will no longer be accepted for credit. Assignments missed due to an absence will be accepted according to the make-up work policy above.

Be Complete

- ▶ Answer all the questions.
- ▶ Show all your work!
 - ▶ In general, what I write on the board is what I expect to see on your homework
 - ▶ Use a different line for each new step!
 - ▶ What do you not have to show?
 - ▶ Addition, Subtraction, Multiplication, Division

Check & Correct

- ▶ Answer Keys are available online
- ▶ Check your work!
 - ▶ Hint: Do a couple, check your work. Do a couple more, check your work again.
- ▶ Mark which questions were incorrect and *make corrections!* Preferably in a different color

In an Acceptable Format

- ▶ Separate sheet of paper
 - ▶ except for graphs; those you can do on the worksheet
- ▶ Pencil, not pen. Erase mistakes, don't just scratch them out.
- ▶ Keep it legible
- ▶ Rewrite the original problem
 - ▶ Except for word problems.
- ▶ Organized
 - ▶ No more than 2 columns - don't squeeze problems together
 - ▶ Use a different line for each new step
 - ▶ Number all the problems clearly
 - ▶ Put a box around your final answer
 - ▶ MLA format, with last name and page number at top of each page
- ▶ Don't do magic - symbols shouldn't randomly appear or disappear

“In general, write your homework as though you are trying to convince someone that you know what you are talking about” - Elizabeth Stapel

Notes in Math

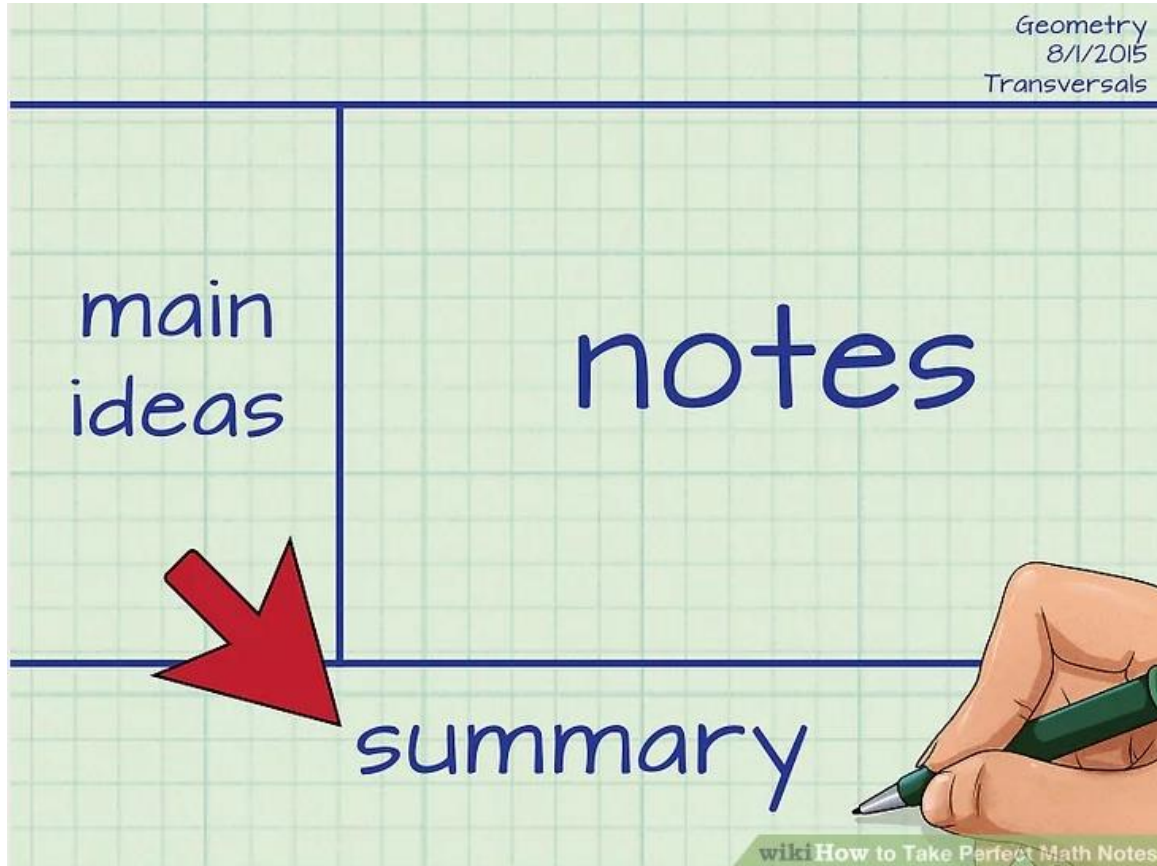
The background of the slide features a photograph of a desk. On the right side, there is a blue mesh pencil holder filled with several blue pencils. To the left of the pencil holder, a portion of a red book is visible. The background is a light-colored wooden surface, possibly a desk or a wall. The entire image is overlaid with a large white geometric shape on the left side, which contains the text 'Notes in Math'. The overall design is clean and modern, with a focus on educational themes.

Note-Taking in Math

▶ Why?

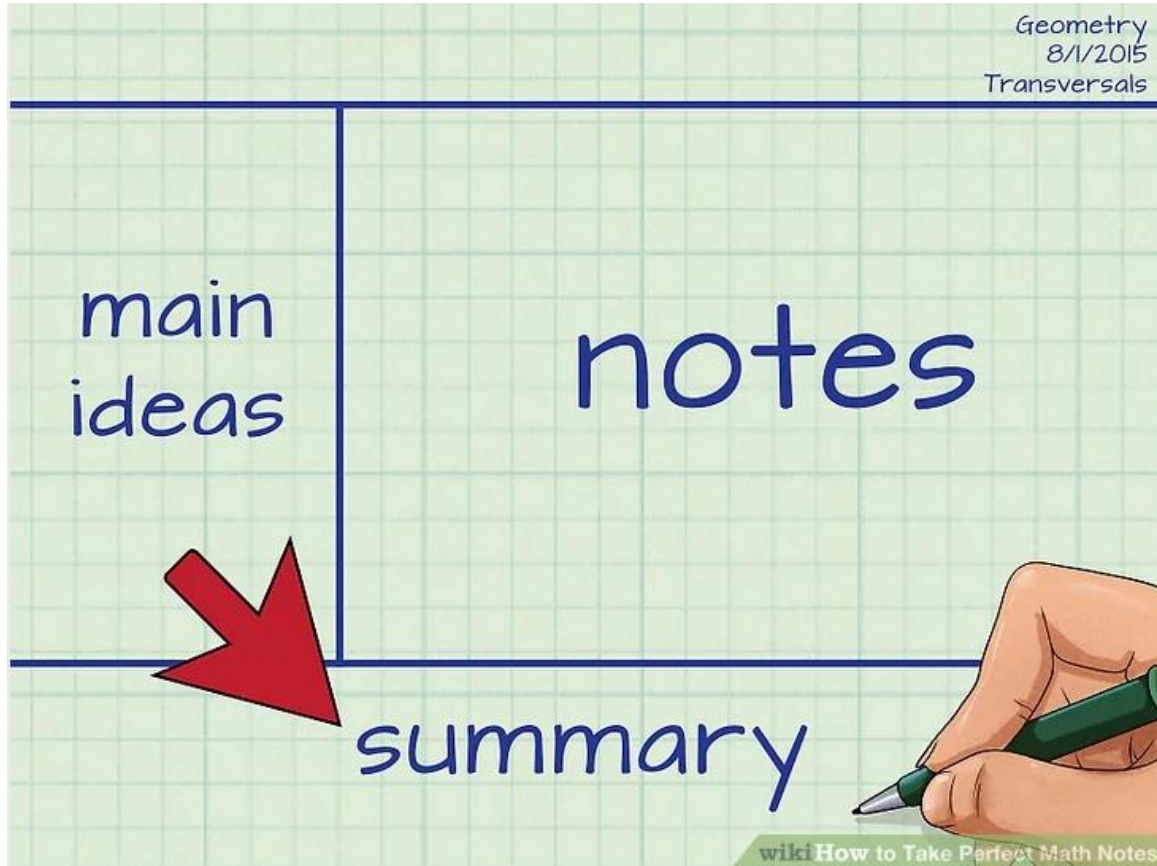
- ▶ Helps us study for finals/semester exams
- ▶ Resource when we get stuck on homework
- ▶ Writing it down helps us remember it better than just watching or listening
- ▶ Part of your classroom grade will be your notes

Cornell Notes



- ▶ How to take Perfect Math Notes: <https://www.wikihow.com/Take-Perfect-Math-Notes>
- ▶ Cornell Notes in Math: https://youtu.be/tlUf_ghDE1U

Cornell Notes: What goes where?



- ▶ Up in the top: Date, Title, and Objective
- ▶ To the Left: Main Ideas, including vocabulary words, formulas, and cues
- ▶ To the Right: definitions, examples, notes
- ▶ Down below: a summary of the key points in the notes. This is also a good place to write down any questions you may still have

What to Write Down?

Important

- ▶ Examples
 - ▶ Perhaps the *single most important thing you can write down*
- ▶ Vocabulary
 - ▶ Definitions
- ▶ Pictures/Graphs

Not-Important

- ▶ Most of the actual words in the PowerPoint
 - ▶ Since the PowerPoints are available on my website, you can always go back and find them later, if you need them

Irrational Numbers: Radicals

SWBAT simplify, multiply, and divide radicals.

What is a radical?

▶ A square root

Technically, cube roots, fourth roots, etc. can also be called radicals and can be manipulated in very similar ways

▶ $\sqrt{139}$

▶ \sqrt{x}

▶ $\sqrt{8x}$

▶ $4x^3\sqrt{7x}$

The expression inside a radical is called the **radicand**

The number outside the radical is called the **coefficient**

Simplifying Square Roots

- ▶ A square root is in simplest form when the radicand:
 - ▶ cannot be divided by a perfect square
 - ▶ is not a fraction
- ▶ Example 1: $\sqrt{384}$

- ▶ Example 2: $\sqrt{243}$

1. $\sqrt{63}$
2. $\sqrt{32}$
3. $\sqrt{54}$
4. $\sqrt{45}$
5. $\sqrt{80}$
6. $\sqrt{343}$
7. $\sqrt{24}$
8. $\sqrt{108}$

Tip:
Instead of creating the factor tree, find the biggest perfect square that the radicand can be divided by.

Multiplying Square Roots

- ▶ Step 1: Multiply the radicands
- ▶ Step 2: Multiply the coefficients
- ▶ Step 3: Simplify. This may involve more multiplication of coefficients.

▶ Example 3: $\sqrt{3} * \sqrt{2}$

▶ Example 4: $-5\sqrt{15} * \sqrt{15}$

- ▶ Multiply the radicals.

1. $-\sqrt{15} * \sqrt{9}$

2. $\sqrt{15} * \sqrt{15}$

3. $\sqrt{10} * \sqrt{5}$

4. $\sqrt{8} * \sqrt{8}$

5. $-3\sqrt{10} * -3\sqrt{10}$

6. $\sqrt{20} * \sqrt{5}$

7. $2\sqrt{5} * \sqrt{2}$

Rationalizing Square Roots

- ▶ A fraction is said to be **rationalized** when the denominator does not include a square root.
- ▶ To rationalize a fraction, multiply both the numerator and the denominator by the square root.
- ▶ Example 7: $-\frac{2}{\sqrt{5}}$

- ▶ Rationalize.

1. $\frac{4}{\sqrt{3}}$

2. $\frac{5}{\sqrt{2}}$

3. $\frac{6}{\sqrt{7}}$

4. $\frac{8}{\sqrt{6}}$

Dividing Square Roots

- ▶ Step 1: If possible, simplify the radicals.
- ▶ Step 2: You will have 2 fractions: 1 made of the coefficients and 1 of the radicands. Reduce both.
- ▶ Step 3: Rationalize.

▶ Example 8: $\frac{4\sqrt{3}}{2\sqrt{6}}$

▶ Example 9: $\frac{\sqrt{3}}{\sqrt{6}}$

- ▶ Divide.

1. $\frac{\sqrt{3}}{\sqrt{2}}$

2. $\frac{\sqrt{4}}{\sqrt{3}}$

3. $\frac{\sqrt{5}}{\sqrt{3}}$

4. $\frac{\sqrt{9}}{\sqrt{15}}$

5. $\frac{\sqrt{15}}{\sqrt{10}}$

6. $\frac{\sqrt{2}}{\sqrt{3}}$