6 Ways to Maximize This Math 20-1 Course

Would it be to your advantage to find a comprehensive list of Math 20-1 topics, complied together in one place for easy access?

Each topic below has a video lesson link with accompanying practice questions, complete with detailed solutions. There are several ways that a teacher and/or student can use this resource.

1. We all have students who miss class for whatever reason. How do we help them catch up? A student could take the initiative to find the appropriate video link, watch it as many times as needed, do the practice questions that come with the lesson, and make corrections with the accompanying detailed solutions. Or, a teacher could assign the appropriate video lesson as homework.

2. We all have students who struggle with certain concepts, even after following an instructional lesson and practice time. What are the options to minimize the struggle? Again, as above, the student can either take the initiative to find a video on the specific topic of concern, or the teacher can guide the student to the lesson that could use extra engagement time.

3. We all have students who do not do as well on an exam as they would like. They ask for a re-write. Do you have a re-write policy and strategy in place? Many teachers I know are hesitant about allowing for a re-write unless the student can demonstrate a willingness to learn from their lack of understanding. In other words, is the student prepared to show that putting in extra time to re-learn some of the concepts will likely result in a better mark on a second attempt? If a student wants to re-write a unit exam, direct him/her to the list of video links for that unit. The instructions could be: watch the videos, do the practice questions, and show me the result after it is self-marked. Yes, a student could just copy the answers, but if you suspect any wrongdoing, asking them a couple of random questions, might help to discern if they actually did the work.

4. We all have to prepare for a substitute teacher coming into our classroom when we are away. Sometimes we are fortunate to have a skilled math teacher take the reins. But what if the person coming in for us does not have that kind of background? Some teachers already have videos of themselves teaching, for just this reason. But, if this is not the case for you, using the videos here can help to provide an instructional component. Downloading and printing the practice questions and solutions is very straightforward. These questions are closely linked to the information given in the video. A ready-made handout can now be easily distributed. Extra handouts or text questions could be ready to be assigned by you, if required.

5. We all have students who do not have the highest level of confidence. How can we help them? I have found that students can increase the confidence level if

they have the opportunity to see the classroom material, prior to seeing the classroom material. In other words, I have worked with students who watched an instructional video at home, and then went to class to hear essentially the same content from their classroom teacher. I think many students just need more time to process information, and hearing it more than once can lead to better understanding and an increased level of confidence.

6. We all may not have heard of the "flipped classroom". What is this? Traditionally, students go to class, listen to the teacher give instruction, work a little in class and then do more practice at home. Often this practice at home includes content that may be difficult to understand and questions that might be better served in an environment of teacher support. A "flipped classroom" requires that the students watch instructional videos at home (or do some kind of pre-class research/reading), and then come to class to work on problems in the classroom, while receiving assistance and guidance from other students and the teacher. This model definitely has its pros and cons. However, having a list of video lessons as shown here, would help to facilitate the use of this specific paradigm.

Chapter 1 – Sequence and Series

- Arithmetic Sequences https://mathpqjq.com/arithmetic-sequence/
- Arithmetic Series https://mathpqjq.com/arithmetic-series/
- Geometric Sequences https://mathpqjq.com/geometric-sequences/
- Geometric Series https://mathpqjq.com/geometric-series/
- Infinite Geometric Series https://mathpqjq.com/infinite-geometric-series/

Chapter 2 – Trigonometry

- Angles in Standard Position and The Reference Angle https://mathpqjq.com/angles-in-standard-position-and-the-reference-angle/
- Trigonometric Ratios of Any Angle https://mathpqjq.com/trigonometric-ratios-for-any-angle/
- Special Triangle Ratios https://mathpqjq.com/special-triangle-ratios/
- Quadrantal Angle Ratios https://mathpqjq.com/quadrantal-angle-ratios/
- Solving a Trig Equation https://mathpqjq.com/solving-a-trigonometric-equation/
- The Sine Law https://mathpqjq.com/the-sine-law/
- The Ambiguous Case of the Sine Law https://mathpqjq.com/the-ambiguous-case-of-the-sine-law/
- The Cosine Law https://mathpqjq.com/the-cosine-law/

- Trig Unit Review https://mathpqjq.com/math-20-1-trigonometry-review/

Chapter 3 – Quadratic Functions

- Quadratic Functions Characteristics https://mathpqjq.com/quadratic-function-characteristics/
- Quadratic Functions Transformations https://mathpqjq.com/quadratic-equation-transformations/
- Converting Quadratic Functions https://mathpqjq.com/converting-quadratic-equations/

Chapter 4 – Quadratic Equations

- Solving Equations Graphically https://mathpqjq.com/solving-a-quadratic-equation-by-graphing/
- Solving Equations By Factoring Part 1 https://mathpqjq.com/solve-quadratic-equations-by-factoring-part-1/
- Solving Equations By Factoring Part 2 https://mathpqjq.com/solving-quadratic-equations-by-factoring-part-2/
- Solving Equations With a Formula https://mathpqjq.com/solve-quadratic-equations-with-a-formula/
- Discriminant and Nature of the Roots https://mathpqjq.com/discriminant-and-nature-of-the-roots/
- Solving Maximum and Minimum Problems https://mathpqjq.com/solving-maximum-and-minimum-problems/

Chapter 5 – Radical Expressions and Equations

- Mixed and Entire Radicals https://mathpqjq.com/mixed-and-entire-radicals/
- Adding and Subtracting Radicals https://mathpqjq.com/adding-and-subtracting-radicals/
- Multiplication of Radicals https://mathpqjq.com/multiplication-of-radicals/
- Radicals With Letters and Cube Roots https://mathpqjq.com/radicals-with-letters-and-cube-roots/
- Division of Radicals https://mathpqjq.com/division-of-radicals/
- Radical Equations https://mathpqjq.com/radical-equations/

Chapter 6 – Rational Expressions and Equations

- Simplifying Rational Expressions and NPV https://mathpqjq.com/simplifying-rational-expressions-and-npv-math-20-1/
- Multiplying and Dividing Rational Expressions https://mathpqjq.com/multiplying-and-dividing-rational-expressions/
- Adding and Subtracting Rational Expressions https://mathpqjq.com/adding-and-subtracting-rational-expressions/
- Rational Equations https://mathpqjq.com/rational-equations/

Chapter 7 – Absolute Value and Reciprocal Functions

- Absolute Value Functions https://mathpqjq.com/absolute-value-functions/
- Absolute Value Equations https://mathpqjq.com/absolute-value-equations/
- Reciprocal Functions Linear https://mathpqjq.com/reciprocal-functions-linear/
- Reciprocal Functions Quadratic https://mathpqjq.com/reciprocal-functions-quadratic/

Chapter 8 – Systems of Equations and Inequalities

- Solving a Linear/Quadratic System Graphically https://mathpqjq.com/solving-a-linear-quadratic-system-graphically/
- Solving a Quadratic/Quadratic System Graphically https://mathpqjq.com/solving-a-quadratic-quadratic-system-graphically/
- Solving a Linear/Quadratic System Algebraically https://mathpqjq.com/solving-a-linear-quadratic-system-algebraically/

Chapter 9 – Linear and Quadratic Inequalities

- Linear Inequalities in Two Variables https://mathpqjq.com/linear-inequalities-in-two-variables/
- Quadratic Inequalities in One Variable https://mathpqjq.com/quadratic-inequalities-in-one-variable/

- Quadratic Inequalities in Two Variables https://mathpqjq.com/quadratic-inequalities-in-two-variables/

Some General Related Skills

- Isolating a Variable https://mathpqjq.com/isolating-a-variable-gr-11/
- Clearing a Fraction https://mathpqjq.com/clearing-fractions/
- Factoring Trinomials https://mathpqjq.com/factoring-trinomials/
- Factoring Difference of Squares https://mathpqjq.com/difference-of-squares-factoring/
- Fractional Exponents https://mathpqjq.com/fractional-exponents/
- Intercepts https://mathpqjq.com/intercepts/