

What your student will study in Mathematics 20-1

What the course covers

Absolute value and radicals

Your student will work with absolute value. This means understanding distance from zero on the number line. The course also covers operations on radicals. The radicand is the number or variable under the radical sign. Your student will simplify, add, subtract, multiply and divide radical expressions. These skills form the foundation for more advanced algebraic work. [See the curriculum: 1, 2, 3.](#)

Rational expressions and equations

Your student will rewrite rational expressions in equivalent forms. A rational expression is a fraction with polynomials in the numerator and denominator. To rewrite them, students factor and cancel common terms. A specific outcome is to determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials). [See the curriculum: 1, 2, 3.](#)

Polynomial factoring

Your student will factor polynomial expressions in several standard forms. These include expressions with a common factor, trinomials of the form $ax^2 + bx + c$, difference of squares, and perfect square trinomials. Factoring is essential for simplifying rational expressions and for solving equations. [See the curriculum.](#)

Angles in standard position and trigonometric ratios

Your student will understand angles measured in standard position. In standard position, an angle opens from the positive x-axis and ranges from 0° to 360° . Your student will use the three primary trigonometric ratios: sine, cosine and tangent. These ratios help solve problems involving angles in any quadrant, not just acute angles in right triangles. The course also introduces the sine law and cosine law. The sine law and cosine law are used to solve for unknown sides and angles in triangles that are not right triangles, including situations with the ambiguous case. [See the curriculum: 1, 2, 3.](#)

Absolute value functions

Your student will graph and analyze absolute value functions. The focus is on linear and quadratic functions. This includes identifying the vertex and the axis of symmetry. It also includes identifying transformations. Your student will use these graphs to solve problems and inequalities. [See the curriculum.](#)

How the course is assessed

Mathematics 20-1 covers curriculum outcomes in Algebra and Number, and Trigonometry. This includes understanding absolute value, operations on radicals and radical expressions, radical equations (limited to square roots), and rational expressions and equations (limited to numerators and denominators that are monomials, binomials or trinomials). Check with your student's school for the specific weighting of formative assessments and unit tests, since Mathematics 20-1 does not have a diploma exam (diploma exams apply to Grade 12 courses like Math 30-1).

How to support study at home

Work through one problem together each week. Ask your student to solve a problem involving radicals or rational expressions step by step. Have them explain each move aloud. Students are expected to solve problems that involve operations on radicals and radical expressions with numerical

and variable radicands. [See the curriculum: 1, 2.](#)

Use a calculator to verify, not to replace thinking. When your student solves a trigonometric problem or simplifies a radical expression, have them work it out by hand first. Then have them check their answer with a calculator. Students solve problems using the three primary trigonometric ratios for angles from 0° to 360° in standard position. [See the curriculum: 1, 2.](#)

Ask about the "why" behind factoring. When your student factors a polynomial, ask them to explain why that form is useful. For example, it may reveal the zeros of a function. Or it may allow cancellation in a rational expression. [See the curriculum.](#)

Draw angles together. Use a protractor or the corner of a piece of paper to draw angles in standard position, starting from the positive x-axis. Have your student identify which quadrant the angle lands in. Ask them to predict the sign of each trigonometric ratio before calculating. [See the curriculum: 1, 2.](#)

Create a reference sheet together. Help your student write out the sine law and the cosine law. Have them also write the definitions of sine, cosine and tangent in their own words. Students solve problems using the cosine law and sine law, including the ambiguous case. [See the curriculum.](#)

Watch for algebra errors in rational expressions. Rational expressions are error-prone. Students must track multiple operations. They must also remember that division by zero is undefined. When your student solves a rational equation, ask them to substitute their answer back into the original equation. This checks that the answer works. [See the curriculum.](#)

Note: 142 learning outcome blocks were left out to fit the 6000-token curriculum budget for this kind of material. Use "Split into parts" to generate one document per organizing idea.