

Mathematics 9
Unit 2: Powers and Exponent Laws

Text: Math Makes Sense 9

Chapter 2

By the end of this unit, it is expected that students will:

Outcomes	Pages in textbook
<p>1. Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by representing repeated multiplication using powers, using patterns to show that a power with an exponent of zero is equal to one and solve problems using powers.</p> <ul style="list-style-type: none"> < Demonstrate the difference between the exponent and the base by building models of a given power. (ex: 2^3 vs 3^2) < Explain, using repeated multiplication, the difference between two given powers in which the exponent and base are interchanged. < Express a given power as repeated multiplication and vice versa. < Explain the role of brackets in powers by evaluating a given set of powers. ex: $(-2)^4$, (-2^4) or -2^4 < Demonstrate, using patterns that a^0 is equal to 1 for a given value of a (when $a \neq 0$). < Evaluate powers with integral bases ($\neq 0$) and whole number exponents. 	<ul style="list-style-type: none"> < Lesson 2.1 Pages 52 - 57 < Lesson 2.2 Pages 58 - 62 < Lesson 2.3 Pages 63 - 68
<p>2. Demonstrate an understanding of operations on powers with integral bases ($\neq 0$) and whole number exponents.</p> <ul style="list-style-type: none"> < Explain, using examples, the exponent laws of powers <ul style="list-style-type: none"> • $(a^m)(a^n) = a^{m+n}$ • $a^m \div a^n = a^{m-n}$, $m > n$ • $(a^m)^n = a^{m \times n}$ • $(ab)^m = a^m b^m$ • $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$, $b \neq 0$ < Evaluate a given expression by applying the exponent laws. < Determine the sum or difference of two given powers, ex: $5^2 + 5^3$ or $4^3 - 4^2$ and record process. < Identify the error(s) in a given simplification of an expression involving powers. 	<ul style="list-style-type: none"> < Lesson 2.4 Pages 73 - 78 < Lesson 2.5 Pages 79 - 85
<p>Review Exercises:</p> <ul style="list-style-type: none"> < Mid-Unit Review < Unit Review < Practice Test 	<ul style="list-style-type: none"> < Page 69 < Pages 86 - 89 < Page 90