

Math Makes Sense 9

Self Paced Study Guide

Exam Target Date: _____

Chapter: 2 - Powers and Exponent Laws, pages 50-91. NB.: Exponents are just a short cut for doing repeated multiplication of the **SAME** number. I.e.

$$5 \times 5 \times 5 = 5^3 = 125$$

Repeated multiplication **exponential form** **standard form**

Chapter Opener: Unit Problem, pg. 91 as a class activity – groups of 2 to 4.

Key Words: page 51. Either now or as you work through this chapter, define, illustrate or give an example of each word or idea.

Topic: 2.1: What is a Power? Read and study pages: 52-54

Give special attention to: Ex. 3 and Discuss the Ideas

NB: When working through the assigned exercises and activities, you should check ALL your answers using the answer guide at the back of the book. Do **NOT** proceed to the next set of questions until you have corrected the section you are working on. I.e.: Do **NOT** wait to correct your answers till you have finished the whole page of assigned questions. Go back and **re-read** the notes and examples till you understand the concept when you are stuck or not getting something.

Basic Assignment: Practice, Q#s 4; 5; 6; 7b, d, e, f; 8e, f; 9c, d, e;

10a, (identify back in Q# 4&5 which diagrams are 3^2 and 2^3 ; 10b;

11; 12a,c,e,f; 13b,d,e,f,g,h,i; 15a,b; 17a,b,c,d,e; 18a,b; 19a,b.

14; copy and complete this chart...

	Prediction	Evaluation (answer)
a		
c		
d		
h		
e		
f		
i		
j		

Challenge Assignment: Choose any 4 of the remaining questions.

Topic 2.2: Powers of 10 and the ZERO Exponent **Read and study pages:** 58 - 60

Give special attention to: Pg.61, Discuss the Ideas

Highlight: The Zero Exponent Law

Basic Assignment: Practice, Q#s 4a,d; 5a,b; 6a,b,d,e; 7; 8c,e,b,d; 9a,b,c,e,f;10a,b,d,f; 12.

Challenge Assignment: Choice of 2 of Qs; 12, 13, 14.

Do 15, and research others like google and googleplex. Do the MATHLINK.

Topic 2.3 Order of Operations with Powers

Read and study pages: 63-65

Give special attention to: BEDMAS acronym

Basic Assignment: PRACTICE Qs 3, 4, 5, 6, 8, 10, 16, 20, 21, 27. (do half the items for each question). 9, 12, 19,

Challenge Assignment:

Mid Unit Review, page 69 Do ALL 10 questions.

Topic 2.4 Exponent Laws I Read and study pages: 73-76

Give special attention to: Two Exponent Laws. Note, these rules apply **ONLY** to powers that **have the SAME BASE !**

Law #1: To MULTIPLY powers having the same base, simply _____ the Exponents.

i.e.: $4^3 \times 4^4 = (4 \times 4 \times 4) \times (4 \times 4 \times 4 \times 4) = 4^{3+4} = 4^7$

Law #2: To DIVIDE powers having the same base, simply _____ the Exponents.

i.e.: $5^5 / 5^2 = \frac{5 \times 5 \times 5 \times 5 \times 5}{5 \times 5} = \frac{5 \times 5 \times 5}{1} = 5^{5-2} = 5^3$

Basic Assignment: PRACTICE Qs: #'s 4, 5, 8, 10, 13 – do half the items for each.

Choose 2 of Q #'s 6, 7, 9, 11.

Challenge Assignment: 15, 16, 19.

Topic 2.5 Exponent Laws II

Read and study pages: 79 – 83.

Give special attention to: Three Exponent Laws.

3. Power of a Power: just _____ the exponents.

i.e.: $(5^2)^3 = (5^2) \times (5^2) \times (5^2) = 5^{2 \times 3} = 5^6$ $(5 \times 5) \times (5 \times 5) \times (5 \times 5)$

4. Power of a Product: the exponent outside the brackets can be applied to _____ number inside the brackets.

i.e.: $(2 \times 4)^3 = 2^3 \times 4^3$

$$(8)^3 = (2 \times 2 \times 2) \times (4 \times 4 \times 4)$$

$$512 = (8 \times 64)$$

$$512 = 512$$

5. Power of a Quotient: the exponent outside the brackets can be applied to both the num... _____ and the den... _____ inside the brackets.

I.e.:
$$\left(\frac{3}{4}\right)^3 = \left(\frac{3}{4}\right) \times \left(\frac{3}{4}\right) \times \left(\frac{3}{4}\right) = \frac{3 \times 3 \times 3}{4 \times 4 \times 4} = \frac{3^3}{4^3}$$

Basic Assignment: PRACTICE Qs Do ALL of each question- #'s 4 to 12. Then do half the items in Q#'s 14, 16, 17 and 19

Challenge Assignment: Do the rest of Q#'s 14, 16, 17 and 19, plus Q# 20, 21.

Study Guide, page 86

Chapter Review, page 89 Sample ALL the questions. This means, do every number, but where there are many questions on a topic, choose half of them, or every second letter.

Practice Test pg. 90