MATH 215

Rational Numbers and Proportional Reasoning for Middle School Mathematics Teachers
Course Content Outline

Current Textbook: Van de Walle, J. A., Bay-Williams, J.M., & Lovin, L.H. , Karp, K. (2017). *Teaching Student-Centered Mathematics, Grades 6-8 (3rd ed.).* Boston: Pearson Education

Readings from other sources may also be required

Estimated timeline of topics by week; subject to change

Week	Topics	Corresponding text pages (Add'l readings may be assigned)
1	Fraction meanings and models , iterating & partitioning	p. 104-113
2	Equivalence, Estimation, Addition & Subtraction	p. 113-128 (up to mult)
3	Multiplying fractions (structures, models, algorithms, connections)	p. 128-135 (up to division)
4	Division of fractions (structures & models)	p. 135-140
5	More Division of fractions (connections between reasoning strategies and formal algorithms)	p. 135-140
6	**Test 1** , Comparing base 10 to other numeration systems	p. 143-146
7	Computing in other bases; start Fraction to Decimal connection	p. 146-153 (inclusive)
8	Cont. above: models, representations, algorithms; base 10 results, i.e. terminating versus repeating	p. 146-153 (inclusive)
9	Comparing, computing w/decimal numbers	p. 154-166 (skip "density" section on p. 155)
10	**Test 2**, Exponents (including negatives), order of op's,	p. 170-180 (up to integers)

11	Extension to reals (proof of irrationality of root 2); denseness of rationals	p. 192-195, p. 155
12	Ratios, Proportional vs Non Proportional scenarios	p. 198-207 (up to covariation)
13	Covariation, connections to linearity	p. 207, 211-212
13	Problem solving (involving proportions); Informal reasoning, strategies and models: scaling, unit rate, ratio tables, double number lines, bar/strip diagrams	p. 213-217
13/14	Cross Products, Informal to Algorithmic	p. 218-219
14	Review	

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