

Chapter 7 – Decimals, Ratio, Proportion and Percent Math203 Moore

Expectations: You will be expected to be able to:

- 7.1. Show how to motivate and represent decimals using a hundreds square and number line-

- 7.2. Write a given decimal numeral in expanded form –

- 7.3. Translate decimal numerals into their word names and vice versa-

- 7.4. Characterize the fractions with terminating decimal representations-

- 7.5. Order decimals using their:
 - (a) Fraction representation and

 - (b) Decimal representation

- 7.6. Use the following mental math/estimation techniques for decimals-
 - 1) Properties

 - 2) Compatible numbers

 - 3) Compensation

 - 4) Fraction equivalents

 - 5) Range estimation

 - 6) Front-end methods

 - 7) Rounding

- 7.7. Justify the “moving the decimal point” when multiplying or dividing by a power of 10-

- 7.8. Estimate the sum, difference, product and quotient of pairs of decimal-

- 7.9. Compute sums, differences, products and quotient of numbers in decimal form
 - (a) Using the standard algorithms and

 - (b) Using a calculator-

- 7.10. Demonstrate that terminating decimals are a numeration system for certain fractions (see 7.3) by changing these fractions to decimals and vice versa-

- 7.11. Change any fraction to its decimal form-

- 7.12. Convert given repeating decimals to their fraction form and characterize the fractions that have repeating, non-terminating decimal representations-

- 7.13. State the definition of the following:
- (a) Ratio-
 - (b) Proportion-
 - (c) Means-
 - (d) Extremes-
- 7.14. Give examples of ratios as rates and represent ratios as part-to-part and part-to-whole-
- 7.15. Apply the definition of cross multiplication of equal ratios-
- 7.16. Solve certain proportions mentally by scaling up and scaling down-
- 7.17. Define $n\%$ (n percent) for any given fraction n and solve problems involving percents using a variety of methods:
- Grid-
 - Proportion-
 - Equation-
 - Calculator-
- 7.18. Convert any fraction, decimal or percent into any of the other two forms-
- 7.19. Use mental math/estimation techniques to solve percent problems-
- 7.20. Solve applied problems involving ratios, proportions and percents-
- 7.21. Explain, illustrate and apply the strategy “work backward”

Chapter 8 – Integers

Math203

Moore

Expectations: You will be expected to be able to

- 8.1. State the definition of the set of integers and represent
- (a) Using colored chips and
 - (b) On the integer number line
- 8.2. Explain how to add integers using
- (a) A set model and
 - (b) A measurement model
- 8.3. Define addition of integers via whole numbers and opposites-

- 8.4. Explain and apply the following properties of integer addition:
- (a) Closure-
 - (b) Commutativity-
 - (c) Associativity-
 - (d) Additive identity-
 - (e) Additive integers-
- 8.5. Explain and apply the opposite of the opposite and additive cancellation properties-
- 8.6. Explain how to subtract pairs of integers using each of these approaches:
- Take away-
 - Adding the opposite-
 - Missing addend-
- 8.7. Distinguish between the terms “negative”, “opposite” and “minus”-
- 8.8. Explain how to represent multiplication of integers using repeated addition and subtraction pattern-
- 8.9. Define multiplication of integers via whole numbers and opposites-
- 8.10. Explain and apply the distributive property of integer multiplication:
- Closure
 - Commutativity-
 - Associativity-
 - Identity-
- 8.11. Define and apply the distributive property of integer multiplication over addition (subtraction)-

- 8.12. Explain and apply the following properties of integer multiplication:
- (a) $a (-1) = -a$

 - (b) $-a (b) = - (ab) = a (-b)$

 - (c) $(-a) (-b) = ab$
- 8.13. State and apply the multiplication cancellation property-
- 8.14. Explain division of integers using the missing factor approach-
- 8.15. Determine which of the following properties of subtraction and division hold in the integers:
- (a) Closure

 - (b) Commutativity

 - (c) Associativity

 - (d) Identity
- 8.16. Determine if a give sum, difference, product or quotient of integers is positive, negative, zero or undefined-
- 8.17. State and apply the definitions of negative exponents and scientific notations-
- 8.18. State the definition of less than and greater than for integers using
- (a) The number line approach and

 - (b) The addition approach
- 8.19. State and apply the properties of less than and greater than with respect to addition, subtraction and multiplication-
- 8.20. Explain, illustrate and apply the strategy “use cases”.