

Content – Elaborations

- **real number:**
 - Classification
- **powers:**
 - positive and negative rational exponents
 - exponent laws
 - evaluation using order of operations
 - numerical and variable bases
- **radical:**
 - simplifying radicals
 - ordering a set of irrational numbers
 - performing operations with radicals
 - solving simple (one radical only) equations algebraically and graphically
 - identifying domain restrictions and extraneous roots of radical equations
- **factoring:**
 - greatest common factor of a polynomial
 - trinomials of the form $ax^2 + bx + c$
 - difference of squares of the form $a^2x^2 - b^2y^2$
 - may extend to $a(f(x))^2 + b(f(x)) + c$, $a^2(f(x))^2 - b^2(f(x))^2$
- **rational:**
 - simplifying and applying operations to rational expressions
 - identifying non-permissible values
 - solving equations and identifying any extraneous roots
- **quadratic:**
 - identifying characteristics of graphs (including domain and range, intercepts, vertex, symmetry), multiple forms, function notation, extrema
 - exploring transformations
 - solving equations (e.g., factoring, quadratic formula, completing the square, graphing, square root method)
 - connecting equation-solving strategies
 - connecting equations with functions
 - solving problems in context

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- **inequalities:**
 - single variable (e.g., $3x - 7 \leq -4$, $x^2 - 5x + 6 > 0$)
 - domain and range restrictions from problems in situational contexts
 - sign analysis: identifying intervals where a function is positive, negative, or zero
 - symbolic notation for inequality statements, including interval notation
- **trigonometry:**
 - use of sine and cosine laws to solve non-right triangles, including ambiguous cases
 - contextual and non-contextual problems
 - angles in standard position:
 - degrees
 - special angles, as connected with the 30-60-90 and 45-45-90 triangles
 - unit circle
 - reference and coterminal angles
 - terminal arm
 - trigonometric ratios
 - simple trigonometric equations
- **financial literacy:**
 - compound interest
 - introduction to investments/loans with regular payments, using technology
 - buy/lease