Math for College Readiness
Module 9 Exam Study Guide

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1. Classifying sums and products as rational or irrational

Determine if the result is a rational or irrational number and determine the reason for each.	Solution:
$\dfrac{34 + \sqrt{7}}{\dfrac{\frac{12}{17} + \frac{4}{21}}{\dfrac{\sqrt{6} \times 23}{8 \times \frac{13}{19}}}}$	

2. Square root of a rational perfect square

Simplify	Solution:
$\sqrt{\frac{81}{25}}$	

3. Simplifying a radical expression with an even exponent

Simplify	Solution:
$\sqrt{40x^{10}}$	

4. Simplifying a radical expression with two variables

Simplify	Solution:
$\sqrt{88x^7y^6}$	

5. Square root addition or subtraction

Simplify	Solution:
$-2\sqrt{8}+\sqrt{18}$	

6. Square root multiplication: Advanced

Simplify	Solution:
$4\sqrt{20}\ X\ \sqrt{48}$	

7. Simplifying a product of radical expressions: Multivariate

Simplify	Solution:
$\sqrt{15w^3v^6}\ \sqrt{5w^8v^6}$	

8. Simplifying a product involving square roots using the distributive property: Advanced

Multiply.	Solution:
$(3\sqrt{6}+2)(2\sqrt{3}+4)$	

9. Special products of radical expressions: Conjugates and squaring

Multiply and simplify.	Solution:
$(\sqrt{y}+2)(\sqrt{y}-2)$	

10. Rationalizing the denominator of a radical expression

Simplify.	Solution:
$\frac{10}{\sqrt{3}}$	

11. Converting between radical form and exponent form

Write the following as an exponential expression:	Solution:
a) $\sqrt[5]{x^3}$ b) $\sqrt[4]{p^9}$	

12. Rational exponents: Non-unit fraction exponent with a whole number base

Simplify	Solution:
a) $81^{1/2}$ b) $16^{5/4}$	

13. Rational exponents: Negative exponents and fractional bases

Simplify.	Solution:
a) $9^{-(3/2)}$ b) $81^{-(½)}$	