

(Do all work on a separate piece of paper.)

**UNIT SIX : Rational Expressions**

Learning Target Topic	Wkbk Ref.	Practice Problem A)	Practice Problem B)
Simplify Rational Expressions (include excluded values)	3.1	$\frac{4x^3y^5}{8x^4y^3}$	$\frac{x^2-4}{2x^2+x-6}$
Add & Subtract Rational Expressions	3.2	$\frac{2x}{x-3} + \frac{5}{x+2}$	$\frac{x-8}{x-5} - \frac{x-2}{5-x}$
Multiplication of Rational Expressions	3.1	$\frac{3x}{x^2-9} \cdot \frac{2x+6}{12x^2-4x}$	$\frac{(2x)^2}{3xy} \cdot \frac{9y^3}{4(x^3)}$
Division of Rational Expressions (include Complex)	3.1 & 3.3	$\frac{8}{x^2-9} \div \frac{12}{x^2+7x+12}$	$\frac{2a}{\frac{a-b}{4a^2}}$ $a-b$

**UNIT SEVEN : Exponents & Radicals**

Learning Target Topic	Wkbk Ref.	Practice Problem A)	Practice Problem B)
Radical Notation	4.1	Write as a radical $x^{\frac{1}{3}}$	Write in exponential form $(\sqrt{x^3})$
Simplify Radicals	4.2	$\sqrt{48x^2y^7}$	$\sqrt[3]{16xy^4}$
Add & Subtract Radicals	wksht	$\sqrt{50} + \sqrt{18}$	$3\sqrt{12} - 2\sqrt{32} + \sqrt{27}$
Multiply Radicals	wksht	$(\sqrt{12})(\sqrt{15})$	$(2\sqrt{6})(5\sqrt{8})$
Divide Radicals (include conjugates)	wkhsht	$\frac{\sqrt{20}}{\sqrt{5}}$	$\frac{2\sqrt{3}}{4\sqrt{5}}$

**UNIT EIGHT: Relations/Functions/Graphs**

Learning Target Topic	Wkbk Ref.	Practice Problem A)	Practice Problem B)
$f(x) = 2x - 3$		$g(x) = 5x + 4$	$h(x) = 2x^2 + 7x - 15$
Introduction to Functions	7.1	Find $h(-3)$	Function or not? Explain. $\{(2,-4), (-5, 3), (7,-4), (1,8)\}$
Operations with Functions	7.2	$(h-g)(x)$	$\frac{h(x)}{f(x)}$
Compositions & Inverses of Functions	7.3	$(f \circ g)(x)$	Find the inverse $j(x) = 2x - 8$
Piecewise & Step Functions	7.4	$n(x) = \begin{cases} 2x-3 & \text{if } x > 2 \\ x & \text{if } x < -1 \end{cases}$ $n(3) \quad n(-1) \quad n(-5)$	Graph $p(x) = \begin{cases} \frac{1}{2}x-3 & \text{for } x > 2 \\ x & \text{for } -2 < x \leq 2 \\ -2 & \text{for } x \leq -2 \end{cases}$

Absolute Value Functions	7.5	$a(x) = -2 x - 3  + 7$ Find $a(8)$	Graph $b(x) = \frac{1}{2} x - 1  + 2$
Transformations of Functions	7.6 & 7.7	$d(x) = x^2$ Write a function that shifts 2 to the right, and 4 down.	$e(x) =  x $ Write a function that shifts 3 up and reflects over the x-axis.

### UNIT NINE: Complex Numbers

Learning Target Topic	Wkbk Ref.	Practice Problem A)	Practice Problem B)
Introduction to Complex Numbers	9.1	Simplify. $\sqrt{-12}$	Simplify. $(2i^3)^5$
Operations (+, -, x) with Complex Numbers	9.2	$(\sqrt{-8})(\sqrt{-18})$	$(3 - 5i)^2$
Conjugates & Dividing Complex Numbers	9.3	$\frac{3}{5i}$	$\frac{2 + i}{-3 - i}$
Quadratic Formula (include complex roots).	9.1 & wksht	Solve. $2x^2 + 8 = 0$	Solve. $x^2 - 4 = 3x$

### UNIT TEN: Polyno

$$4^x = 32$$

### mial & Rational Functions

Learning Target Topic	Wkbk Ref.	Practice Problem A)	Practice Problem B)
Introduction to Polynomial Functions	10.1	Sketch a graph of a function of odd degree with negative lead coefficient and one relative maximum.	State everything you know about a quartic function.
Zero of the Function? (direct and synthetic substitution)	10.2	Verify that $(x + 5)$ is a factor of $3x^3 + 14x^2 - x + 20$	Is -3 a zero? Explain. $f(x) = 2x^3 + x^2 - 36x + 15$
Finding zeros of a polynomial function	10.2/ whsht	-5 is a zero. Find other zeros $f(x) = x^3 - 2x^2 - 33x + 10$	Find all zeros. $g(x) = x^4 - x^3 - 4x^2 - 8x - 96$
Rational Functions	10.4	Graph. $f(x) = \frac{x^2 - x - 12}{2x + 6}$	Graph. $g(x) = \frac{2x + 4}{x^2 - 2x - 8}$

### UNIT ELEVEN: Exponential Functions

Learning Target Topic	Wkbk Ref.	Practice Problem A)	Practice Problem B)
Introduction to Exponential Functions	11.1	Growth or Decay? $y = \left(\frac{1}{3}\right)4^x$	Graph. $y = 2 \cdot \left(\frac{1}{4}\right)^x$
Converting Exponential & Logarithmic Form	11.1/ wksht	Rewrite in logarithmic form $\frac{1}{49^2} = 7$	Solve. $4^x = 32$