Unit 1 Review Notes

Radicals

root $\sqrt{\text{Radicand}}$

SIMPLIFY

- Factor Tree
- Look for pairs
- Pairs on outside, leftovers on inside

EX: $3\sqrt{45x^3y^4}$

$5 \cdot 9$, $3 \cdot 3$

$9xy^2\sqrt{5x}$

+ OR −

- Simplify
- Only + or − like terms
- (same Radicand / inside)
- +/− the outside

EX: $\sqrt{12}+\sqrt{18}+\sqrt{27}$

$4 \cdot 3$, $9 \cdot 2$, $9 \cdot 3$

$2\sqrt{3}+3\sqrt{2}+3\sqrt{3}$

$5\sqrt{3}+3\sqrt{2}$

MULTIPLY

- outside times outside
- inside times inside
- Simplify

EX: $5\sqrt{20} \cdot 3\sqrt{8}$

$15\sqrt{160}$

$10 \cdot 10$, $4 \cdot 4$, $5 \cdot 2$

$60\sqrt{10}$

Polynomials

Standard form: exponents in descending order

EX: $2x^3+5x^2-8$

VOCABULARY

Ex: $3x^2 + 5x - 2$

- Terms: parts of expression; $3x^2, 5x, -2$
- Coefficient: # infront variable; $3, 5$
- Constant: # w/o variable; -2
- Variable: letter; x
- Leading Coefficient: 1st coefficient; 3

CLASSIFYING

Terms	Degree
1- monomial	0- constant
2- binomial	1- linear
3- trinomial	2- quadratic
4- polynomial	3- cubic
	4- quartic

+ OR −

when subtract

- Combine like terms (same variable, same exponent)
- Add or Subtract coefficient
- Remember to distribute the neg

$(3x + 4) + (2x - 1)$

$5x+3$

$(3x^2 + 5x - 2) - (2x^2 + 8)$

x^2+5x+6

MULTIPLY

- FOIL
- BOX

$(x + 5)(2x - 3)$

$2x^2-3x+10x-15$

$2x^2+7x-15$

	x	$+5$
$2x$	$2x^2$	$10x$
-3	$-3x$	-15

$2x^2+7x-15$

PERIMETER

Add all sides

AREA

Multiply length x width

AREA OF A SHADED REGION

Area of Big Shape − Area of small Shape

Rational vs. Irrationals

RATIONAL
* Whole #'s (+ or -)
* Fractions
* Perfect Square Roots
* Repeating decimals
* terminating decimals

IRRATIONAL
* π
* ugly Square Roots ($\sqrt{24}, \sqrt{11}, \sqrt{12}$)
* non-terminating decimals (...)

OPERATIONS
R + R = R R x R = R

R + I = I R x I = R or I (R, when R=0)

I + I = I or R I x I = R or I

Accuracy
- Estimation: Guess before calculations
- Approximation: Rounding after doing calculations
- Exact/Accurate: Exact / Spot on

Precision
* more decimal places = more precise
- Rounding:
  - Nearest whole #: No decimals
  - Nearest tenth: 1 # after dec.
  - Nearest hundredth: 2 # after dec
  - Nearest thousandth: 3 # after dec.

CONVERSIONS

ENGLISH/

ENGLISH TO METRIC
- Write down given info
- Line up units diagonally
- Multiply across the top
- Multiply across the bottom
- Divide

Ex: Convert 8,000 inches to miles

$\frac{8{,}000\ in}{1} \cdot \frac{1\ ft}{12\ in} \cdot \frac{1\ mi}{5280\ ft} = \frac{8{,}000}{63{,}360} = .13\ mi$

Ex: Convert 850,000 ft/min to mph

$\frac{850{,}000\ ft}{1\ min} \cdot \frac{1\ mi}{5280\ ft} \cdot \frac{60\ min}{1\ hr} = 9{,}659.09\ mph$

METRIC
BASE UNITS
- meter
- liter
- grams

K	H	D	B	D	C	M
i	e	e	a	e	e	i
l	c	a	s	c	n	l
o	t	o	a	e	i	t	i	i

Move decimal whatever Way you move in chart

Ex: Convert 805 cm to meters

805. → 8.05 m