

# Unit 1 Review Notes

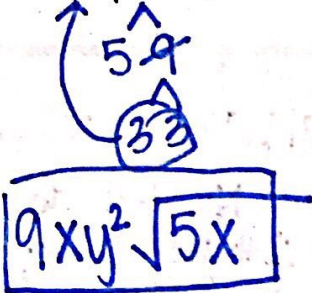
## Radicals

Root  $\sqrt{\text{Radicand}}$

### SIMPLIFY

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

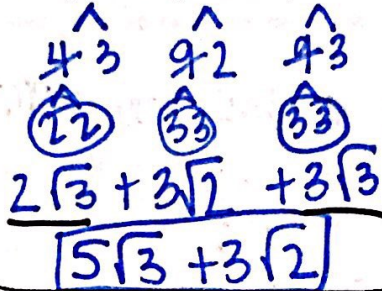
EX:  $3\sqrt{45x^3y^4}$



### + OR -

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

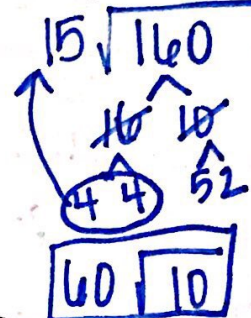
EX:  $\sqrt{12} + \sqrt{18} + \sqrt{27}$



### MULTIPLY

- outside times outside
- inside times inside
- Simplify

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



Standard form: exponents in descending order

## Polynomials

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

### VOCABULARY

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

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

### CLASSIFYING

Terms

- 1- monomial
- 2- binomial
- 3- trinomial
- 4- polynomial

Degree

- 0- constant
- 1- linear
- 2- quadratic
- 3- cubic
- 4- quartic

### + OR -

- same variable
- same exponent

- Combine like terms
- Add or Subtract coefficient
- Remember to distribute the neg

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

$5x + 3$

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

$5x^2 + 5x + 6$

### MULTIPLY

FOIL

BOX

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

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

$2x^2 + 7x - 15$

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

$2x^2 + 7x - 15$

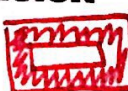
### PERIMETER

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

- \*  $\pi$
- \* ugly square roots ( $\sqrt{24}$ ,  $\sqrt{11}$ ,  $\sqrt{2}$ )
- \* non-terminating decimals (...)

## OPERATIONS

$$R + R = R \quad R \times R = R$$

$$R + I = I \quad R \times I = R \text{ or } I \text{ (R, when } R=0)$$

$$I + I = I \text{ or } R \quad I \times I = R \text{ or } I$$

## Accuracy

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

## Precision

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

# CONVERSIONS

## ENGLISH/

### ENGLISH TO METRIC

- o Write down given info
- o Line up units diagonally
- o Multiply across the top
- o Multiply across the bottom
- o Divide

Ex: Convert 8,000 inches to miles

$$\begin{array}{r|l|l} 8,000 \text{ in} & 1 \text{ ft} & 1 \text{ mi} \\ \hline 1 & 12 \text{ in} & 5280 \text{ ft} \end{array} = \frac{8,000}{63,360} = 0.13 \text{ mi}$$

Ex: Convert 850,000 ft/min to mph

$$\begin{array}{r|l|l} 850,000 \text{ ft} & 1 \text{ mi} & 60 \text{ min} \\ \hline 1 \text{ min} & 5280 \text{ ft} & 1 \text{ hr} \end{array} = 9,659.09 \text{ mph}$$

## METRIC

BASE UNITS

- meter
- liter
- grams

K	H	D	B	D	C	M
i	e	e	e	e	e	i
l	c	c	s	o	n	l
0	+	a	e	i	+	!
	0	a	e	i	+	!

Move decimal whatever  
Way you move in chart

Ex: Convert 805 cm to meters

$$805 \text{ cm} = 8.05 \text{ m}$$