

Dear Middle School Parents and **Math Students**,

I am so looking forward to spending time with your child this year! Students will begin each class with a prayer and the reminder that "We are in the presence of God!"; therefore, students and I will be expected to act accordingly.

Students will be responsible for **attending class with**

- 1) **math text book**
- 2) **math folder** (containing **homework**, notebook, and loose leaf paper)
- 3) **pencil**

**Homework** procedure is as follows

- assigned **everyday**
- if **absent**, student must check **my web site for posted homework** or **call a friend**
- if **without homework**, students will earn **0%** and a "**BLUE**" note sent home to be signed by a **parent**
- **third** time without homework will result in **before school detention 7:30am** the following day

**Grades \*\*\***

- homework, class participation, quiz (**every Friday**)
- January Exam (covering Sept.- Jan. material – **double weighted**)
  - **6<sup>th</sup> – Jan. 13& 14**    **7<sup>th</sup> – Jan. 7 & 8**    **8<sup>th</sup> – Jan. 14 & 15**
- June Exam (covering Sept. – June material) – use **Math Folder, NOTEBOOK & web pages for STUDY GUIDE**
- Any grade earned lower than 80% student must correctly "**Re-Do**" to raise grade **but** this must be attached to original graded paper and put into the Re-Do file the **very next morning by 8:30am**. All work must be shown for each corrected problem; no work = no credit. This is their responsibility; I will not remind or ask for Re-Dos.

**Extra Help**

- **every morning 7:50-8:15**
- after school by **prior appointment**

\*If you need to talk to me for any reason please call the office at 433-6422, or write me a note delivered by your student **before homeroom** or e-mail me at [bauermj@desalescatholicschool.org](mailto:bauermj@desalescatholicschool.org)

**Thank you,**  
Mary Jo Bauer

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**\*\*\*Progress Reports –Students will be given a report once a month. They must return it with a parent's signature the very next math class. Students should make sure any missing work would be also handed in at that time.** Progress reports will be given on the following dates:

**Sept. 29    Oct.13    Oct. 29    Nov. 30    Dec. 21    Jan. 21    March 1    March 29**  
**April 29    June 1**

## M A T H H O M E W O R K

<https://www.pearsonsuccessnet.com/> user name-mjbauer password-maryjo  
click on student center under your book/then plug page # at top/enter  
(6<sup>th</sup>-blue book1 7<sup>th</sup>-green book2 8<sup>th</sup> -Pre-Algebra or Book3 RED)

Monday March 8

6<sup>th</sup>- p 418 #10-24 even

7<sup>th</sup> - p 459 #15-18 and #24 -25

8<sup>th</sup> - C3 p415 #8 and #12 also PA p418 #1-4, #9-10

Tuesday March 9 **Sign 5 wk reports and return!!**

6<sup>th</sup>- p 423 #6-20 even

7<sup>th</sup>- p 470 #8-18 even

8<sup>th</sup>- C3 p 548 #4,6,10,14,16

Wednesday March 10

6<sup>th</sup> p 429 #5-11 odd

7<sup>th</sup>- p 474 #7-15 odd p475 #33-34

8<sup>th</sup>-C3 p 420 #5-8

Thursday March 11

6<sup>th</sup> p 429 #6-10 even

7<sup>th</sup>- p645 #27, 34, 36 , 37

8<sup>th</sup>- C3 p578 #15-18/ #20-21 p579 #32 a,b,and c

Friday March 12 Dress Down \$1 for needy Families

6<sup>th</sup> p 643 #10-25 round to nearest 10th

7<sup>th</sup> p 372 #3-12

8<sup>th</sup> PA p393 #16-19 p394 #24-29

**Enjoy your wkend!! March 17 "wear green" Happy St.Pat's Day!**

# M A T H

## Memorize - Attack - Technique - Habits!!!

Dear Math Students,

Please enjoy, but more importantly use the following helps to reach your highest potential in math this year!!!

### PERCENTS

*To the tune of "When You're Happy..."*

Always put % over 100,

Reduce, now you have a fraction!

Use Michael's rule to find a decimal-I-I-I

Move 2 places right for % (snap-snap!)

\*Michael's Rule -the numerator of a fraction drops down into the division house and the denominator becomes the divisor!!!

**Change % to a decimal:** Move 2 places LEFT from % (remove % replace with decimal)

**Change decimal to a %:** Move 2 places RIGHT from decimal (remove decimal replace with %)

IT IS RIGHT TO HAVE 100%

"To FIND % of any number, change % to a decimal and MULTIPLY"

% and Proportions:  $\frac{\%}{100} = \frac{\text{is (part)}}{\text{of (whole)}}$

% of Change: **First Subtract** to find the amount of  $\frac{\text{change} - X}{\text{original } 100}$  (cross multiply to solve)

Was this an increase or decrease?

### GRAPHS

- LINE shows change over TIME!! (line-time)
- BAR- compares
- Frequency reported 3 ways: Line Plot      Frequency Table      Histogram
- MEAN - Average
- Mode - Most **often** used data
- Median - Middle data number **AFTER** data has been written in order least to greatest
- Range - Greatest data figure minus the least figure
- Outlier-data item far apart from all data (It is so far out there that it makes the data lie-- affects the mean!!)
- Stem-and-Leaf Plots - Leaf is the **last** digit to the right; Stem is the remaining digit or digits.
- Circle - to find % =  $\frac{X}{100} = \frac{\text{part}}{\text{whole}}$       to find degrees  $\frac{X}{360} = \frac{\text{part}}{\text{whole}}$

## Common Fraction---Decimal-----%

$$1/2 = .5 = 50\%$$

$$1/8 = .125 = 12.5\%$$

$$1/20 = .05 = 5\%$$

$$3/8 = .375 = 37.5\%$$

$$1/25 = .04 = 4\%$$

$$1/3 = \overline{.3} = 33.\overline{3}\%$$

$$5/8 = .625 = 62.5\%$$

$$1/50 = .02 = 2\%$$

$$2/3 = .\overline{6} = 66.\overline{6}\%$$

$$7/8 = .875 = 87.5\%$$

$$1/100 = .01 = 1\%$$

$$1/4 = .25 = 25\%$$

$$1/6 = \overline{.16} = 16.\overline{6}\%$$

$$3/4 = .75 = 75\%$$

$$5/6 = \overline{.83} = 83.\overline{3}\%$$

$$1/5 = .2 = 20\%$$

$$1/10 = .1 = 10\%$$

$$2/5 = .4 = 40\%$$

$$3/10 = .3 = 30\%$$

$$3/5 = .6 = 60\%$$

$$7/10 = .7 = 70\%$$

$$4/5 = .8 = 80\%$$

$$9/10 = .9 = 90\%$$

## 1<sup>st</sup> 25 PERFECT SQUARES

$$1^2 = 1$$

$$13^2 = 169$$

$$2^2 = 4$$

$$14^2 = 196$$

$$3^2 = 9$$

$$15^2 = 225$$

$$4^2 = 16$$

$$16^2 = 256$$

$$5^2 = 25$$

$$17^2 = 289$$

$$6^2 = 36$$

$$18^2 = 324$$

$$7^2 = 49$$

$$19^2 = 361$$

$$8^2 = 64$$

$$20^2 = 400$$

$$9^2 = 81$$

$$21^2 = 441$$

$$10^2 = 100$$

$$22^2 = 484$$

$$11^2 = 121$$

$$23^2 = 529$$

$$12^2 = 144$$

$$24^2 = 576$$

$$25^2 = 625$$

Remember to find the Square root ( $\sqrt{\quad}$ ) what # multiplied by itself gave you that #--or use the chart but go right to left!!

## DECIMALS

- **add or subtract** - LINE UP DECIMALS
- **multiply** - add up all the decimal places in entire problem then move that many places in the answer, adding zeros if needed (playing jacks!)
- **divide** - **move decimal in divisor** to end of # then move that same amount right in the dividend, adding zeros if needed
- **Terminating decimal** - when dividing decimals the quotient stops (zero remainder)
- **Repeating Decimal** - when a digit or sequence of digits repeats in the quotient (**a bar is placed over the 1st repeating #**)

## EQUATIONS

An equation is an expression with a variable, #'s, and an equal sign

**Go to the side with the variable** (letter that takes the place of a number)

**"Da-Da" (side with variable) Do the opposite--inverse operation**

Why? Your **goal is to isolate the variable** to find what # it equals

## INEQUALITIES

Statements that compare TWO expressions (using  $<$ ,  $>$ , or  $\leq$ ,  $\geq$ )

- When **dividing or multiplying by a negative # REVERSE** the direction of the inequality
- **Always graph** solutions to inequalities - Explanation: "Each of the #'s on my solution graph can replace X and are (write in words your solution including the signs  $<$ ,  $>$ ,  $\leq$ ,  $\geq$ )

## INTEGERS

Like signs: **ADD**    Unlike signs: **SUBTRACT**

Take the sign of the # with the greater Absolute value

(Absolute Value is **POSITIVE** distance from zero on the # line)

$$|-5| = +5 \quad |+5| = +5$$

When **SUBTRACTING**: First **ADD** the **OPPOSITE** then use above rule!!!

**Multiplying and Dividing**: Multiply or divide normally then find the answer sign by saying:

**Like signs Positive**

**Unlike Negative !!**

—

\*only when multiplying and dividing---**add** the **negative** signs if=**even** # then ans. Is **Positive**

If=**odd** # ans. **Is Negative**

## EXPONENTS

Exponent -is a positive or negative # placed above and to the right of a quantity to express repeated multiplication. ex:  $4^3 = (4)(4)(4)=64$  or  $x^3 = (x)(x)(x)$  or  $(2/3)^3=(2/3)(2/3)(2/3)=8/27$

The Quantity is called the BASE the raised # is the POWER

**Negative Exponents** may be dropped under 1 in a fraction to remove negative sign

Ex:  $4^{-2} = 1/16$

$-4^2 = -(4 \times 4) = -16$  BUT  $(-4^2) = (-4) \times (-4) = +16$

Any Base with the power of zero =1

Any power to the base of 1=1 ex:  $1^8=1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1=1$

So Base of 1 no matter what the exponent ALWAYS =1

BUT  $(-1)^{\text{even exponent}} = +1$   $(-1)^{\text{odd exponent}} = -1$

Whatever the exponent is touching gets raised to the power:

ex:  $2^3=(2)(2)(2)=8$   $(2+3)^2=(2+3)(2+3)=(5)(5)=25$

**Multiply** -if base is the same ---keep base **ADD** exponents

ex:  $2^5 \times 2^2 = 2^{5+2} = 2^7$

**Divide** -if base is the same----keep the base **SUBTRACT** exponents

ex:  $2^5$  divided by  $2^2 = 2^{5-2} = 2^3$

**IF Base is Different**---Simplify 1<sup>st</sup> ex:  $6^2$  divided by  $2^3 = 2^3 \times 3^2 = 8 \times 9 = 72$   
 $36$  divided by  $8 = 4.5$

If a # is taken to another power  $(4^2)^3$ ---keep original base

**Multiply** exponents---  $4^6$

**Perfect Squares**-a # that is the square( $4^2=16$ ) of a whole # is a perfect square

SQUARE ROOT( $\sqrt{\quad}$ ) of a # is another # that when multiplied by itself is = to the given #

Ex:  $\sqrt{25}=5$   $\sqrt{a^2}=a$  BUT to Simplify  $\sqrt{32}$ -find 2 factors one a perfect square

$\sqrt{16 \times 2}$  now take  $\sqrt{\quad}$  of perfect sq so= $4\sqrt{2}$

$\sqrt{24}=\sqrt{4 \times 6}=2\sqrt{6}$  to check square # outside x inside!!!

\* perfect squares are found on p.5 of web site

## FRACTIONS

To **ADD or Subtract** you need **COMMON Denominators**

HOW? Ask these key questions:

1. Can the smaller denominator divide evenly into the larger?

**If YES use the Larger**

2. Is one of the denominators **PRIME**

**If Yes Multiply together to get common denominator**

3. If all above answers are **NO** -- Find **LCM** (start multiplying the larger denominator until you find a product that is also a multiple of the smaller denominator)

To **Multiply or Divide** fractions you **need Improper Box** -

- To multiply try to cross reduce then multiply Numerator X Numerator  
Denominator X Denominator **ALWAYS ALWAYS ALWAYS REDUCE!!!!**
- To Divide: **Copy Multiply Flip (Reciprocal)**  
**ALWAYS ALWAYS ALWAYS REDUCE!!!!**

## RATIONAL VS. IRRATIONAL NUMBERS

**Rational:** may be written in the form of  $a/b$  (fraction) this includes terminating decimals, repeating decimals and square roots of perfect squares, and %

*Hint: First 25 perfect squares would be a great tool to memorize p3 web site*

**Irrational:**

- **doesn't repeat** or terminate
- the square root of any # that is **not** a perfect square

## GEOMETRY

**Angles:**

- ACUTE "so cute"  $< 90^\circ$
- RIGHT =  $90^\circ$
- OBTUSE  $> 90^\circ < 180^\circ$
- STRAIGHT =  $180^\circ$

2 angles with a **sum of  $90^\circ$  are Complementary**

2 angles with **a sum of  $180^\circ$  are Supplementary**

**Triangles:**

- Scalene= no congruent (=) sides
- Isosceles= 2 congruent (=) sides
- Equilateral = 3 congruent (=) sides
- Right Triangle = 1 right angle
- Acute Triangle = 3 acute angles
- Obtuse Triangle = 1 obtuse angle

180 degrees in every triangle so.....

(to the tune of "Are You Sleeping?")

Given 2 ANGLES of a triangle,

Want the 3<sup>rd</sup>?

Want the 3<sup>rd</sup>?

Add them both together,

Subtract from 180,

Boombala!

You found the 3<sup>rd</sup>!

**BUT**

Given 2 LENGTHS of a triangle,

Want the 3<sup>rd</sup>?

Want the 3<sup>rd</sup>?

Use Pythagorean Theorem,

$$a^2 + b^2 = c^2$$

Hypotenuse is C side,

Opposite Right angle,

Find the square root!

Total degrees in any polygon =  $(n-2)180^\circ$  (where n = the number of sides in the polygon)

Perimeter: distance around a figure  $s$ =side

$$P=s+s+s+s \text{ (depending on how many sides the figure has)}$$

Circumference: distance around a circle

$$C=\pi D \text{ (D = diameter or } 2 \times \text{radius)}$$

Area: number of square units inside a figure (\*answer must be labeled "square units")

- Rectangle (Quadrilateral)  $A=bh$  (b=base h=height)

Hint: Put your finger on the Right angle & you will be on the height & the base

- Triangle  $A = \frac{1}{2} bh$

Hint: every triangle = 1/2 of a quadrilateral (4 sided polygon)

- Square  $A = s^2$

- Trapezoid  $A = \frac{1}{2} (b_1 + b_2)h$

- Circle  $A = \pi r^2$  (r=radius) leave in terms of  $\pi$  unless stated (use  $\pi$  key on calculator or = 3.14)

Volume: # of cubic units needed to fill inside a figure (\*answer must be labeled "cubic units")

$$V=lwh$$

For 3 dimensional figures

- Prism (surface area)  $SA = 2(bh)+2(bh)+2(bh)$

$$V = lwh$$

- Cylinder (surface area)  $SA = 2\pi r^2 + \pi Dh$

(where D=diameter, h=height and r=radius)

$$V = \pi r^2 h$$

(where r=radius and h=height)

## TRANSVERSAL

A line that intersects two co-planar lines in different points

Types of angles formed by a transversal:

- Adjacent - next to each other and their sum =  $180^\circ$

- Vertical - across from each other and they are equal

- Alternate interior - inside angles on opposite side of transversal and they are equal

- Corresponding - never adjacent - inside & outside on the same side of the transversal are equal

Hint: if Transversal is cut in half, angles would match up

## GRAPHING

Ordered pairs (x, y)

- x on horizontal axis -- goes right or left Look Right or Left then Shoot!
- y on vertical axis -- goes up or down

**Four Quadrants** - must be written in Roman numerals

- I - top right hand
- II - top left hand
- III - bottom left hand
- IV - bottom right hand

**Linear Equation**  $y = mx + b$  (where  $m$ =slope and  $b$ =y intercept)

- **Slope** =  $\frac{\text{change in } y}{\text{change in } x} = \frac{\text{rise}}{\text{run}}$

## TRANSFORMATIONS

- **Translation:** Slide *Hint: x's move right (+) to left(-), y's move up (+) then down (-)*
- **Reflection:** reflected (flip) *Hint: the axis you reflect over stays the same, the other negates*
- **Rotation:** turn
  - $360^\circ$  - stays the same
  - $180^\circ$  - both negate
  - $90^\circ$  - first negate y, then x and y change places
  - $270^\circ$  - first negate x, then x and y change places

## POLYNOMIALS

One term or the sum or difference of two or more terms *Hint: terms are separated by a + or -*

- **Adding:** combine terms Terms are separated with + or - sign
- **Subtracting:** negate all signs after the subtraction sign
- **Multiplying:** Multiply co-efficient and use properties of exponents  
FOIL (First Outer Inner Last) or set up like a (normal) vertical multiplication problem
- **Factor:** find GCF and pull it out!

## PROBABILITY

The chance of a favorable outcome

If you see the word "or" then **ADD** *Hint: "add the oar" to the row boat*

If you see the word/symbol "and" "then" ":" then you should **MULTIPLY**

**HUGE TIP FOR SUCCESS:** Memorize your common fractions to decimals chart(p4 web site)

Enjoy Math and Learn from your mistakes!!!