



SAINT ANTONINUS SCHOOL

5425 JULMAR DRIVE · CINCINNATI, OHIO 45238 · (513) 922-2500

Dear parents and guardians,

I have absolutely enjoyed getting to know your children in their Math and Science classes this year. Often over the summer, students forget the skills that they learned in math the previous year. To help avoid some of this and to continue practicing math skills, your student was given a math packet to complete this summer on the last day of Math class. The skills covered in their summer work packet are essential for students to understand in order for them to be successful in their 8th grade year and on the HSPT. In order to hit the ground running, your student will be exposed to content they may have never seen before, through EdPuzzles and practice. Students are expected to attempt everything. We will spend time at the beginning of the year going over the summer work. **Students must SHOW ALL WORK** to receive credit. The summer work packet will be **due Friday August 21st**. If your child happens to lose their packet, additional copies will be posted to the school's website.

If your student finds he or she is struggling with any of the concepts they are more than welcome to email me at peloquin@saintantoninus.org. They may also scan the QR code on the bottom of this page that will take them to a list of resources as concepts appear in their summer work packet. As a forewarning, I will not be checking my email daily in the months of June and July, so it may take up to a week for me to respond. On the back of this letter, I have included a list of resources that may be helpful for your child. I hope you have a wonderful and blessed summer!

Sincerely,
Meghan Peloquin

8TH GRADE MATH TEACHER





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Math Resources

• YouTube Channels

- Mathantics - YouTube
- Math with Mr. J
- Mario's Math Tutoring - YouTube
- MathTV
- TeacherTube Math - YouTube
- Mashup Math - YouTube
- PBS Math Club - YouTube
- Math Songs by NUMBROCK - YouTube
- Middle School Math TikTok Curriculum - YouTube
- MooMooMath and Science

• Websites

- Math is Fun
- Khan Academy
- Learning IXL
- Corbett Maths
- PBS Math Club
- Prodigy - Math Games

• Books – All can be purchased on Amazon/Local Book Stores

- "Everything You Need to Ace Math in One Big Fat Notebook"
- "The Big Fat Middle School Math Workbook" – Additional Practice, Examples and Explanations
- Mathwise Integers – Useful for those struggling with integers

8th Grade Accelerated Math Summer Work Checklist

- Summer Work Packet

- Complete Mrs. Casias Math Real Number System EdPuzzles while filling in the Corresponding Notes in the following order:
 - Fractions, Decimals, Percents and Rounding
 - Estimating Square Roots
 - Rational vs Irrational Numbers
 - Classifying Real Numbers
 - Scientific Notation
 - Estimating Real Numbers on a Number Line
 - Comparing Real Numbers
 - Comparing Real Numbers Part 2
 - Ordering Real Numbers

***Please note this will also help with skills needed for the HSPT. I do not expect you to master these concepts but I do expect you to come prepared to ask questions during the first 2 weeks of school.

- On a sheet of loose leaf paper or by adding post it notes to each notes page, make sure you write down any questions you have.
- Prepare for Real Number System Quest (Tentative Date: Wednesday September 3rd)

EdPuzzle Expectations:

- Score a 75% or higher
- Complete Mrs. Casias Math Guided Notes

Summer Packet Expectations:

- Work is shown - neatly and organized
- Calculator is only used on the pages labeled - calculator is allowed
- Every problem is attempted
- Mrs. Peloquin is emailed with questions: peloquin@saintantoninus.org

PERFECT SQUARES			SQUARE ROOTS	
1^2	1×1	1	$\sqrt{1}$	1
2^2			$\sqrt{4}$	
3^2			$\sqrt{9}$	
4^2			$\sqrt{16}$	
5^2			$\sqrt{25}$	
6^2			$\sqrt{36}$	
7^2			$\sqrt{49}$	
8^2			$\sqrt{64}$	
9^2			$\sqrt{81}$	
10^2			$\sqrt{100}$	
11^2			$\sqrt{121}$	
12^2			$\sqrt{144}$	
13^2			$\sqrt{169}$	
14^2			$\sqrt{196}$	
15^2			$\sqrt{225}$	
16^2			$\sqrt{256}$	
17^2			$\sqrt{289}$	
18^2			$\sqrt{324}$	
19^2			$\sqrt{361}$	
20^2			$\sqrt{400}$	
25^2			$\sqrt{625}$	

PERFECT CUBES			CUBE ROOTS	
1^3	$1 \times 1 \times 1$	1	$\sqrt{1}$	1
2^3			$\sqrt{8}$	
3^3			$\sqrt{27}$	
4^3			$\sqrt{64}$	
5^3			$\sqrt{125}$	
6^3			$\sqrt{216}$	
7^3			$\sqrt{343}$	
8^3			$\sqrt{512}$	
9^3			$\sqrt{729}$	
10^3			$\sqrt{1000}$	

FRACTIONS, DECIMALS, PERCENTS, & ROUNDING

Guided Notes

ESSENTIAL QUESTION

How do I convert fractions & percents to decimals, and round decimals?

FRACTIONS	<ul style="list-style-type: none"> To convert fractions to a decimal, divide the _____ by the _____. You can use a calculator to convert a decimal to a fraction.
PERCENTS	<ul style="list-style-type: none"> Percents are a part out of _____ To convert a percent to a decimal, _____ it by _____
DECIMALS	<ul style="list-style-type: none"> _____ decimals are numbers that stop. _____ decimals are numbers that repeat forever.
ROUNDING	<ul style="list-style-type: none"> To round, look at the number directly _____ the place value that you are rounding to. <ul style="list-style-type: none"> ➤ If it is _____ 5, then the number stays the _____ ➤ If it is _____, then round the number _____

PLACE VALUE

3	.	7	9
W H O L E		T E N T H	H U N D R E D T H

<p>1. Convert the number below to a decimal.</p> $\frac{3}{8}$ <p>TERMINATING or REPEATING ?</p> <p>Round the the nearest hundredth:</p>	<p>2. Convert the number below to a decimal.</p> $\frac{9}{4}$ <p>TERMINATING or REPEATING ?</p> <p>Round the the nearest tenth:</p>
<p>3. Convert the number below to a decimal.</p> $\frac{2}{9}$ <p>TERMINATING or REPEATING ?</p> <p>Round the the nearest tenth:</p>	<p>4. Convert the number below to a decimal.</p> $\frac{10}{11}$ <p>TERMINATING or REPEATING ?</p> <p>Round the the nearest hundredth:</p>
<p>5. Convert the number below to a decimal.</p> <p>65%</p> <p>TERMINATING or REPEATING ?</p> <p>Round the the nearest tenth:</p>	<p>6. Convert the number below to a decimal.</p> <p>12.3%</p> <p>TERMINATING or REPEATING ?</p> <p>Round the the nearest hundredth:</p>
<p>7. Convert the decimal to a fraction.</p> <p>0.05</p>	<p>8. Convert the decimal to a fraction.</p> <p>8.125</p>

ESTIMATING SQUARE ROOTS

Guided Notes

ESSENTIAL QUESTION

What is a square root and how do I approximate a non-perfect square?

PERFECT SQUARES — a number made by squaring a whole number

1^2	2^2	3^2	4^2	5^2	6^2	7^2	8^2	9^2	10^2	11^2	12^2	13^2	14^2	15^2
1	4	9	16	25	36	49	64	81	100	121	144	169	196	225

SQUARING A NUMBER

- Multiplying a number by _____
- Raising it to a power of _____
- Area of a square shape = the _____ squared.

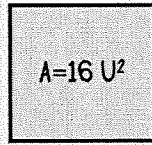
Area is the side length squared.

$$\begin{aligned} \text{Area} &= 16 \text{ u}^2 \\ 4^2 &= 16 \end{aligned}$$

Side length is the square root of the area

$$\begin{aligned} \text{Side Length} &= 4 \text{ units} \\ \sqrt{16} &= 4 \end{aligned}$$

4 UNITS



4 UNITS

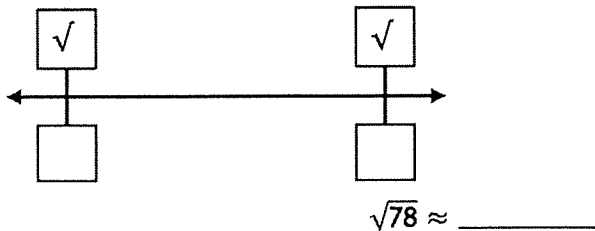
SQUARE ROOT OF A NUMBER

- The _____ or _____ of squaring a number.
- The side length of a square shape = the square root of the _____

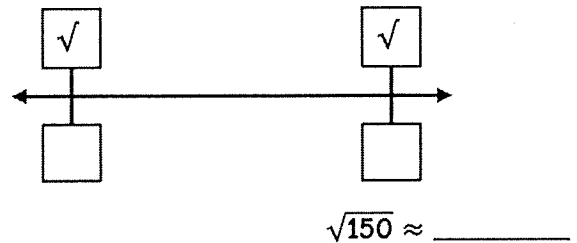
NON-PERFECT SQUARES

- Numbers whose square roots do not result in a _____
- Examples of non-perfect squares: _____

1. Estimate $\sqrt{78}$ by using the number line & determining what two perfect squares it lies between.



2. Estimate $\sqrt{150}$ by using the number line & determining what two perfect squares it lies between.



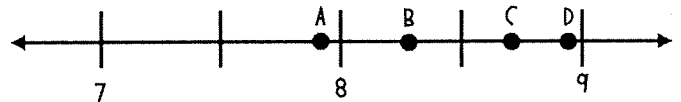
3. Point F is shown on the number line.



Which value is best represented by point F?

- A. $\sqrt{3.7}$ B. $\sqrt{13.7}$ C. $\sqrt{3.3}$ D. $\sqrt{10.9}$

4. Which point on the number line best represents the location of $\sqrt{76}$?



Point _____ is closest to $\sqrt{76}$.

5. A square pool has an area of 169 ft². What is the side length of the pool?

6. Mr. William is going to put ribbon around the edge of his square bulletin board. It has an area of 225 in². What is the perimeter of the square bulletin board?

7. Evaluate the expression below. Round to the nearest hundredth if necessary.

$$\sqrt{100} - 11$$

8. Evaluate the expression below. Round to the nearest hundredth if necessary.

$$\frac{\sqrt{33}}{3}$$

RATIONAL VS. IRRATIONAL NUMBERS

Guided Notes

ESSENTIAL QUESTION

How do I determine if a number is rational or irrational?

RATIONAL NUMBERS

- Rational numbers are numbers that can be written as _____ or certain _____.
- Rational numbers include _____ or _____ decimals, _____ numbers, and _____ squares.

IRRATIONAL NUMBERS

- Irrational numbers _____ be written in fraction form.
- Irrational numbers include _____ and _____ decimals (decimals that go on forever with no pattern) and _____ squares.

1. Determine if the number below is rational or irrational & explain why.

$$\pi$$

2. Determine if the number below is rational or irrational & explain why.

$$\sqrt{100} + 1$$

3. Determine if the number below is rational or irrational & explain why.

$$\frac{2}{7}$$

4. Determine if the number below is rational or irrational & explain why.

$$3\pi$$

5. Determine if the number below is rational or irrational & explain why.

$$\sqrt{20}$$

6. Determine if the number below is rational or irrational & explain why.

$$\sqrt{20 + 5}$$

7. Determine if the number below is rational or irrational & explain why.

$$-\sqrt{144}$$

8. Determine if the number below is rational or irrational & explain why.

$$-5.65$$

9. Give an example of a rational number that is less than two.

10. Jerry wants to find the side length of a square that has an area of 50 ft². Will the side length be a rational or irrational number?

Summary

Explain what irrational numbers in your own words:

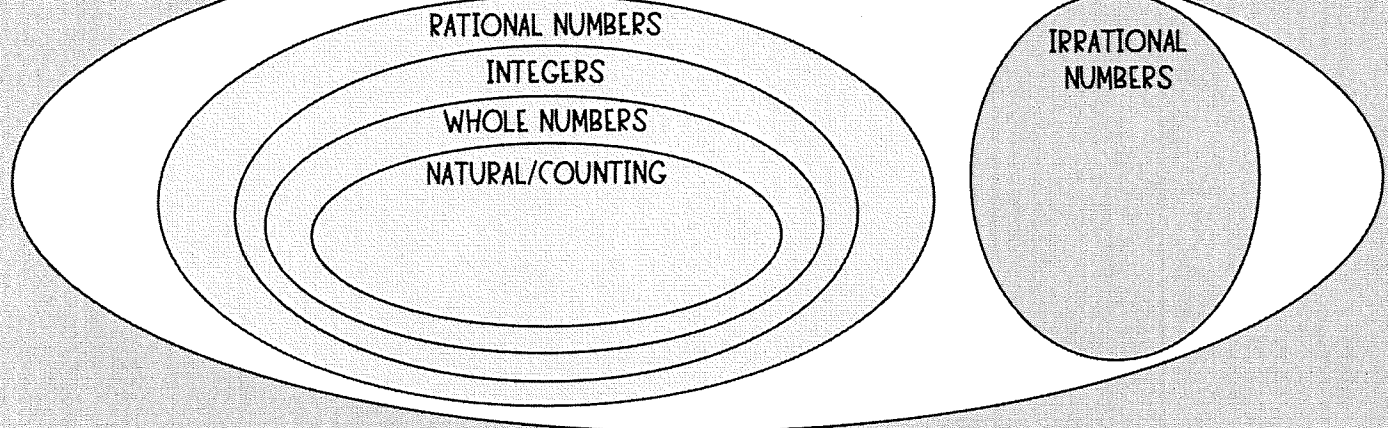
CLASSIFYING REAL NUMBERS

Guided Notes

ESSENTIAL QUESTION

How do I determine if a number is a natural number, whole number, integer, rational number, or irrational number?

THE REAL NUMBER SYSTEM



NATURAL/ COUNTING NUMBERS	<ul style="list-style-type: none"> The positive, whole, counting numbers beginning with _____ Examples: _____ 	WHOLE NUMBERS	<ul style="list-style-type: none"> All natural numbers AND _____ Examples: _____
INTEGERS	<ul style="list-style-type: none"> Whole numbers and their _____ (negatives!) Examples: _____ 	RATIONAL NUMBERS	<ul style="list-style-type: none"> Numbers that can be written as _____, _____ decimals and _____ decimals. Examples: _____
IRRATIONAL NUMBERS	<ul style="list-style-type: none"> Numbers that cannot be written as _____; Non-terminating & non-repeating decimals. Examples: _____ 	THE REAL NUMBER SYSTEM	<ul style="list-style-type: none"> The real number system includes all _____ and _____ numbers. Examples: _____

Classify the numbers below as natural, whole, integer, rational, or irrational numbers.

1. -18	2. -1.25	3. $12.\overline{56}$	4. π
5. $12 + \sqrt{25}$	6. $-\sqrt{45}$	7. $\frac{16}{2}$	8. 0
9. $\frac{\sqrt{99}}{3}$	10. $\frac{2\pi}{5}$	11. $\frac{4}{11}$	12. $-\sqrt{225}$

SCIENTIFIC NOTATION

Guided Notes

ESSENTIAL QUESTION

How to I convert numbers between standard form & scientific notation?

SCIENTIFIC NOTATION

- A short way to write very _____ or very _____ numbers that typically have multiple zeros.

$$\boxed{} \times 10^{\boxed{}}$$

CONVERTING STANDARD TO SCIENTIFIC

- Move the decimal to create a number between _____ and _____.
- _____ how many places you moved. This will be your power of 10.
- Decide if the exponent is _____ or _____.
 - POSITIVE if the number is _____ than 1.
 - NEGATIVE if the number is _____ than 1.

Convert the numbers below to scientific notation.

2,304

12,090,000

0.00894

0.00004036

CONVERTING SCIENTIFIC TO STANDARD

- Move the decimal the same number of places as the _____.
 - If the exponent is POSITIVE, move the decimal _____ to make the number _____.
 - If the exponent is NEGATIVE, move the decimal _____ to make the number _____.
- Add _____ as place holders if necessary, and do not ever round when converting!

Convert the numbers below to standard form.

6.334×10^6

2.0057×10^8

5.93×10^{-4}

3.402×10^{-5}

BELOW ARE THE 4 DIFFERENT TYPES OF SCIENTIFIC NOTATION PROBLEMS. SOLVE THE PROBLEM & WRITE A SHORT SUMMARY OF THE PROCESS YOU USED.

SCIENTIFIC WITH NEGATIVE EXPONENT → STANDARD

Write 1.0203×10^{-2} in standard form.

SCIENTIFIC WITH POSITIVE EXPONENT → STANDARD

Write 9.908×10^5 in standard form.

SMALL STANDARD → SCIENTIFIC
Write 0.000406 in scientific notation.

LARGE STANDARD → SCIENTIFIC
Write 4,060,890 in scientific notation.

ESTIMATING REAL NUMBERS ON A NUMBER LINE

Guided Notes




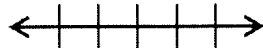





ESSENTIAL QUESTION

How can I estimate real numbers on a number line?

ESTIMATING REAL NUMBERS

- To estimate a real number on a number line, we need to figure out what integers the real number is close to by converting it to a _____
- Be careful with _____ and _____

Round the numbers to the nearest hundredth and place them on the number line.

1. $-\sqrt{122}$ 	2. $\sqrt{92.5}$ 	3. $\sqrt{56.2}$ 
4. $-\frac{8}{9}$ 	5. $-13\frac{1}{11}$ 	6. -4π 
7. $\frac{\sqrt{2}}{9}$ 	8. 67.5% 	9. $-4\bar{7}$ 

COMPARING REAL NUMBERS



Guided Notes

ESSENTIAL QUESTION

How to I compare the values of real numbers?

$<$	$>$	$=$
LESS THAN	GREATER THAN	EQUAL TO
Fill in the blank with a value that makes the statement true. _____ $<$ 9	Fill in the blank with a value that makes the statement true. _____ $>$ -9	Fill in the blank with a value that makes the statement true. _____ = 0.5

Compare the following values by placing the correct sign in the inequality or equal sign in the box.

1. 20π <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> 6.278×10^2	2. -20.1 <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> $\frac{-41}{2}$
3. $0.\overline{27}$ <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> $\frac{3}{11}$	4. -61% <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> $-\frac{7}{9}$
5. $\frac{\pi}{4}$ <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> $\frac{3\sqrt{2}}{4}$	6. $\sqrt{90}$ <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> 9.502×10^{-1}
7. It took James $6\frac{2}{7}$ minutes to run a mile, and it took Josie 6.15 minutes to run a mile. Who ran the fastest mile? <div style="text-align: center;"></div>	8. Pam's banana bread recipe uses 3.35 cups of sugar while Jim's banana bread recipe uses $3\frac{3}{8}$ cups of sugar. Which recipe uses the largest amount of sugar? <div style="text-align: right;"></div>

Summary

Explain how to compare real numbers in your own words:

COMPARING REAL NUMBERS PT. 2

Guided Notes

ESSENTIAL QUESTION

How do I determine a value that makes an inequality true?

$$10\% < x < \frac{3}{4}$$

- To determine a value that makes an inequality true, first convert all numbers (including the answer choices) to _____.
- Then, compare the numbers _____ the inequality.
- Last, analyze the answer choice decimals to see which one would make the inequality _____. This is your answer!

1. Which value of x makes the inequality true?

$$34\% < x < \frac{3}{4}$$

- A. $0.\bar{7}$
- B. $\sqrt{7}$
- C. $0.\bar{3}$
- D. $\frac{2}{3}$

2. Which value of x makes the inequality true?

$$\frac{1}{9} < x < \sqrt{0.9}$$

- A. 9%
- B. $0.\bar{9}$
- C. $\frac{4}{5}$
- D. $\frac{1}{11}$

3. Which value of x makes the inequality true?
Select THREE correct answers.

$$x > \frac{29}{4}$$

- A. -8
- B. $\frac{30}{4}$
- C. 7.35%
- D. 28
- E. $\sqrt{49}$
- F. $\sqrt{64}$

4. Which value of x makes the inequality true?
Select THREE correct answers.

$$x < -\sqrt{81}$$

- A. $-9.\bar{1}$
- B. -9.5%
- C. $-\frac{1}{9}$
- D. $-\frac{37}{4}$
- E. $-\sqrt{80}$
- F. $-\sqrt{82}$

ORDERING REAL NUMBERS

Guided Notes

ESSENTIAL QUESTION

How do I order real numbers?

STEP 1 READ THE QUESTION	<ul style="list-style-type: none"> • Read the question and determine if the numbers should go in: <ul style="list-style-type: none"> ➤ Least to Greatest (_____, _____, _____) ➤ Greatest to Least (_____, _____, _____)
STEP 2 SEPARATE POSITIVES & NEGATIVES	<ul style="list-style-type: none"> • If the set of numbers has positives and negatives, _____ them. <ul style="list-style-type: none"> ➤ If Least to Greatest, _____ come first. ➤ If Greatest to Least, _____ come first.
STEP 3 CONVERT TO DECIMALS & ROUND	<ul style="list-style-type: none"> • Convert the numbers to decimals & round to the same _____ ❖ Tip: Round to the nearest _____ like _____ & add 0's where needed so all numbers have two digits after the decimal.
STEP 4 ORDER THE ORIGINAL NUMBERS	<ul style="list-style-type: none"> • Use the _____ to help you order the numbers in their original form. • _____ a number line for negative numbers. • Double check!

1. Order the numbers below from greatest to least. $4\%, \frac{4}{9}, 4 \times 10^{-3}, \frac{3}{8}, \sqrt{0.16}$	2. Order the numbers below from least to greatest. $-\sqrt{25}, 5.3, 0, -\pi, 5\frac{1}{3}$
3. List the values below in decreasing order. $\frac{\sqrt{17}}{2}, 210\%, 7\pi, 3\sqrt{48}, 2\frac{1}{6}$	4. List the values in ascending order. $-\frac{1}{3}, 0, 2\sqrt{10}, -3.6\%, 6.032 \times 10^{-2}$

5. The average amount of charge different brands of phones use in an hour are shown in the table. List the phones in increasing order according to their average charged use in an hour.

PHONE BRAND	CHARGE LOST PER HOUR
iPhone	-55%
Samsung	$-\frac{1}{2}$
Nokia	$-\sqrt{3}$
LG	-1.6



VARIABLES & EXPRESSIONS

Translate each algebraic expression or verbal expression.

VERBAL EXPRESSION	ALGEBRAIC EXPRESSION
8 times a number x is subtracted by 4	
	$6x^2 + 7$
5 increased by the product of -3 and a number x	
	$3x + 4y - 2$
3 times the sum of a number x and 7	
	$\frac{x}{2} + 4x$
A number y cubed plus x squared decreased by 7	
	$5(x - 4) + 2$
the difference of x and y is divided by 3 and added by 8	
	$-2(x + 4)^2 - 1$

★ No Calculators ★

ORDER OF OPERATIONS

Simplify each expression using the order of operations.

G
E
M/D
A/S
O

1. $5 - 6 + 2(3)$	2. $4 + 5(7 - 1) + \frac{8}{2}$
3. $-9(4 + 2) - 2(3) + 4^2$	4. $7 - 2[-6 - (3 + 1)] - \frac{8 + 7}{3}$
5. $0.5(-8 - 4) + 3(8 - 2^2)$	6. $3 - 5(2) - 7(5^2 - 4^2)$
7. $2(3)^2 - 4(3) + 1$	8. $4(3 - 5)^3 + 5$

THE NUMBER PROPERTIES

Match each expression with the property that it shows.

$$5 + 0 = 5$$

Commutative Property
of Addition

$$5(1) = 5$$

Associative Property
of Addition

$$5(0) = 0$$

Additive Identity

$$2 + 3 = 3 + 2$$

Distributive Property

$$2(3) = 3(2)$$

Commutative Property
of Multiplication

$$2 + (3 + 4) = (2 + 3) + 4$$

Associative Property
of Multiplication

$$2(3 \cdot 4) = (2 \cdot 3)4$$

Zero Product Property

$$3(2 + 5) = 6 + 15$$

Multiplicative Identity

★ No Calculators, Use Order of Operations 4

EVALUATING EXPRESSIONS

Evaluate each expression given the following values for each variable.

$a = 2$	$b = -3$	$c = 4$	$d = -5$	$e = 6$	$f = -7$
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1. $2a + 3d$	2. $b^2 - e^2$
3. $-3c - (a + d) + f$	4. $2(b - e) + (f + c)^2$
5. $\frac{d - c}{3} - 4(ab + f)$	6. $c(ab - 1) + de - f^2$

* No Calculator *

5

ADDING & SUBTRACTING FRACTIONS

Add or subtract the fractions. Simplify your answer.

$$\frac{1}{2} + \frac{1}{2} =$$

$$\frac{1}{3} + \frac{1}{3} =$$

$$\frac{1}{4} + \frac{2}{4} =$$

$$\frac{2}{5} - \frac{1}{5} =$$

$$\frac{3}{6} - \frac{5}{6} =$$

$$\frac{1}{7} - \frac{8}{7} =$$

$$\frac{5}{8} - \frac{7}{8} =$$

$$-\frac{5}{9} - \frac{1}{9} =$$

$$-\frac{3}{10} + \frac{7}{10} =$$

$$\frac{1}{2} + \frac{5}{4} =$$

$$\frac{2}{9} + \frac{1}{3} =$$

$$\frac{1}{4} + \frac{2}{16} =$$

$$\frac{2}{3} - \frac{1}{5} =$$

$$\frac{3}{6} - \frac{5}{4} =$$

$$\frac{1}{2} - \frac{8}{7} =$$

$$\frac{5}{8} - \frac{7}{5} =$$

$$-\frac{5}{4} - \frac{1}{9} =$$

$$-\frac{3}{10} + \frac{7}{3} =$$

MULTIPLYING & DIVIDING FRACTIONS

Multiply or divide the fractions. Simplify your answer.

$$\frac{5}{2} \cdot \frac{1}{2} =$$

$$\frac{1}{3} \cdot \frac{1}{3} =$$

$$\frac{1}{4} \cdot \frac{2}{4} =$$

$$-\frac{2}{5} \cdot \frac{3}{5} =$$

$$\frac{3}{6} \cdot -\frac{5}{6} =$$

$$-\frac{1}{4} \cdot -\frac{8}{7} =$$

$$4\left(\frac{5}{8}\right) =$$

$$-3\left(\frac{2}{3}\right) =$$

$$-2\left(\frac{4}{9}\right) =$$

$$\frac{1}{2} \div \frac{5}{4} =$$

$$\frac{2}{9} \div \frac{1}{3} =$$

$$\frac{1}{4} \div \frac{2}{5} =$$

$$-\frac{2}{3} \div \frac{1}{5} =$$

$$\frac{3}{6} \div -\frac{5}{4} =$$

$$-\frac{1}{2} \div -\frac{8}{7} =$$

COMBINING LIKE TERMS

Combine like terms for each expression.

EXPRESSION	SIMPLIFIED
$x + x + 3x + y$	
$y + 2y + 5x + x$	
$5 + z + z + 4z - 6$	
$3x + 4x - 5$	
$5c + 2b - 3c$	
$x + y + 2x$	
$6a - 5b + a$	
$4 + 3x - 7 - 8x$	
$3(x + 2) - 4$	
$-5(x - 3) + 7x$	
$5m - 6n - 9m$	
$-8a - 9b - 10a + 9b$	
$2(x + 4) + 5x - 3$	
$-10(2 + x) - 3x$	

Calculator allowed

8

SOLVING ONE-STEP EQUATIONS

Solve the one-step equations.

$$x + 7 = 9$$

$$5 + x = -3$$

$$6 = x + 8$$

$$x - 9 = 1$$

$$-5 + x = -2$$

$$4 = x - 7$$

$$5x = 75$$

$$-2x = -64$$

$$-7.5 = 1.25x$$

$$\frac{x}{4} = 7$$

$$-\frac{x}{2} = 8$$

$$-3 = -\frac{x}{9}$$

$$\frac{3}{4}x = 7$$

$$-\frac{1}{2}x = 8$$

$$-5 = -\frac{2}{9}x$$

* Calculator allowed *

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SOLVING TWO-STEP EQUATIONS

Solve the two-step equations. Leave your answer as a simplified fraction.

$$2x + 7 = 9$$

$$5 + 4x = -3$$

$$6 = 2x + 8$$

$$4x - 9 = 1$$

$$-5 + 3x = -2$$

$$4 = -x - 7$$

$$5x + 10 = 75$$

$$-2x + 8 = -64$$

$$-7.5 = 1.25x + 2.5$$

$$\frac{x}{4} - 6 = 7$$

$$-\frac{x}{2} + 3 = 8$$

$$-3 = 8 - \frac{x}{9}$$

$$\frac{3}{4}x + 5 = 7$$

$$-\frac{1}{2}x - 4 = 8$$

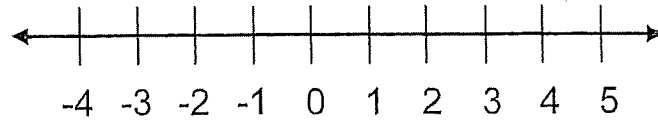
$$-5 = -\frac{2}{9}x + 2$$

○ for $>$ or $<$
● for \leq or \geq

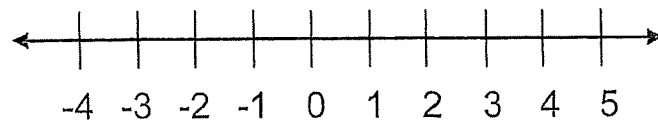
GRAPHING INEQUALITIES

Graph each inequality on the number line shown.

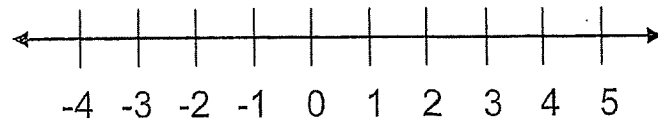
$x > 2$



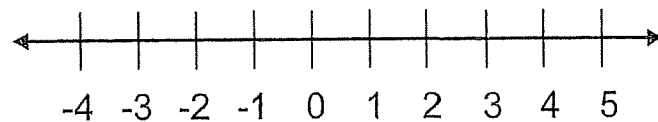
$x < -3$



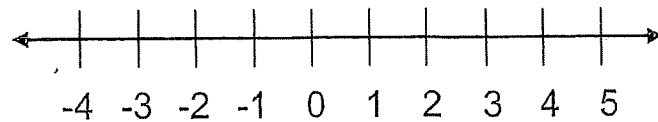
$x \geq -1$



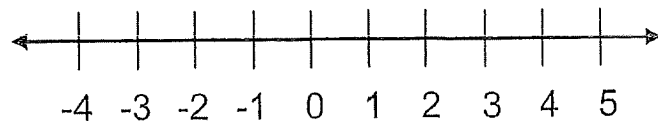
$x \leq 4$



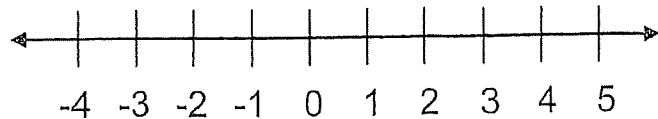
$x < 0$



$x \geq 0$



$x > -2$

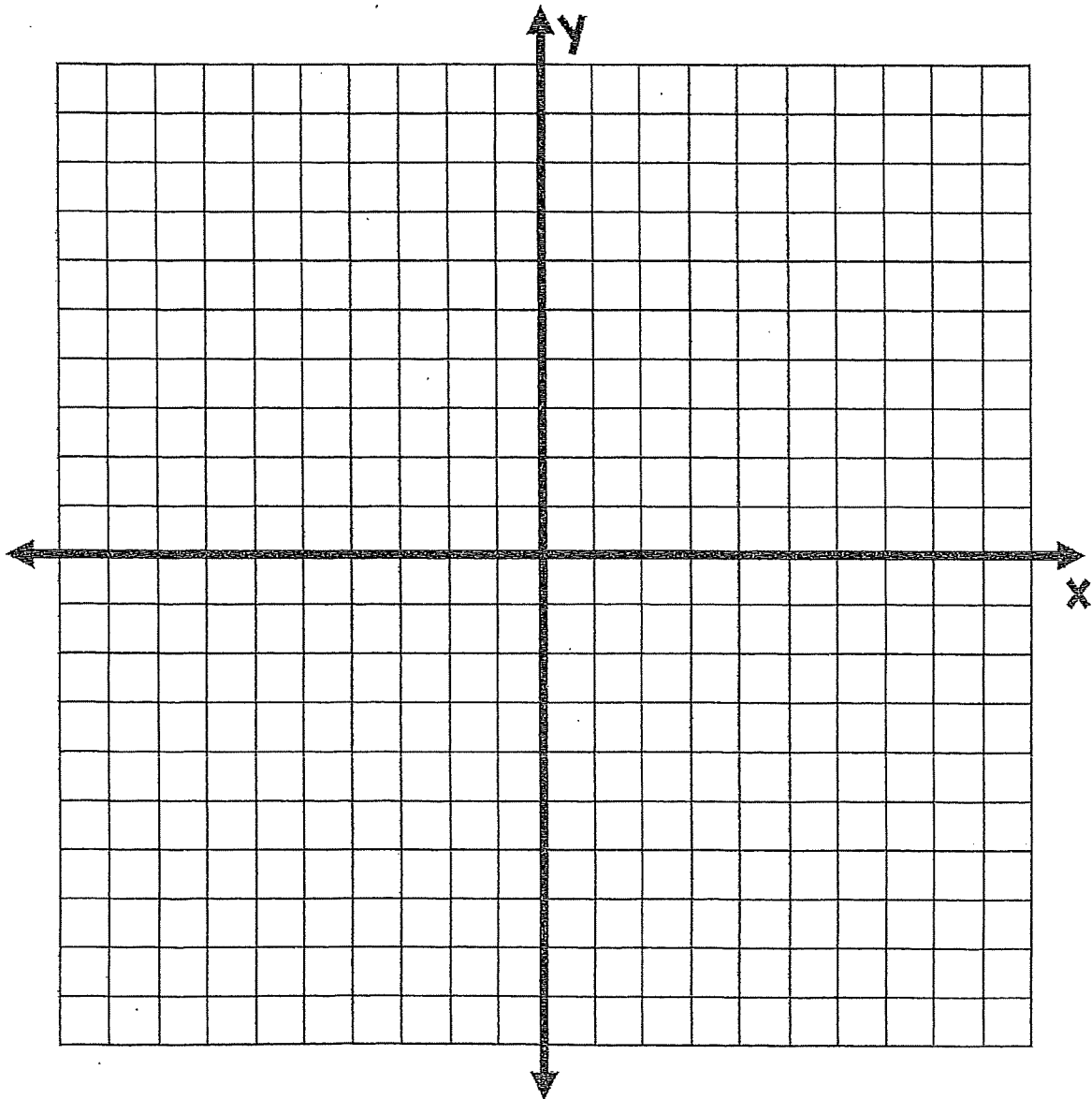


THE COORDINATE PLANE

Plot each point on the coordinate plane and name the quadrant the point is in.

POINT	QUADRANT
A(3, 4)	
B(5, -7)	
C(0, -5)	
D(-9, 2)	

POINT	QUADRANT
E(-1, -2)	
F(-8, 0)	
G(10, 3)	
H(-4, 8)	



RATIOS

Create the ratios for each situation.

Simplify & use units

FRUIT	RATIO
strawberries to blueberries	
strawberries to pineapple	
pineapple to mango	
mango to banana	
banana to blueberries	
mango to blueberries	
pineapple to berries	
mango to the smoothie	
pineapple to the smoothie	
berries to the smoothie	
berries to non-berries	
smoothie to blueberries	
smoothie to mango	

★ Calculator allowed ★

SOLVING PROPORTIONS

Solve each proportion. Leave your answer as a simplified fraction or decimal.

$$\frac{x}{3} = \frac{4}{6}$$

$$\frac{6}{5} = \frac{x}{4}$$

$$\frac{3}{5} = \frac{6}{x}$$

$$\frac{x}{7} = \frac{1}{6}$$

$$\frac{6}{x} = \frac{2.5}{2}$$

$$\frac{4.5}{3} = \frac{9}{x}$$

$$\frac{x}{3} = \frac{4.2}{10}$$

$$\frac{11}{x} = \frac{2.5}{5.5}$$

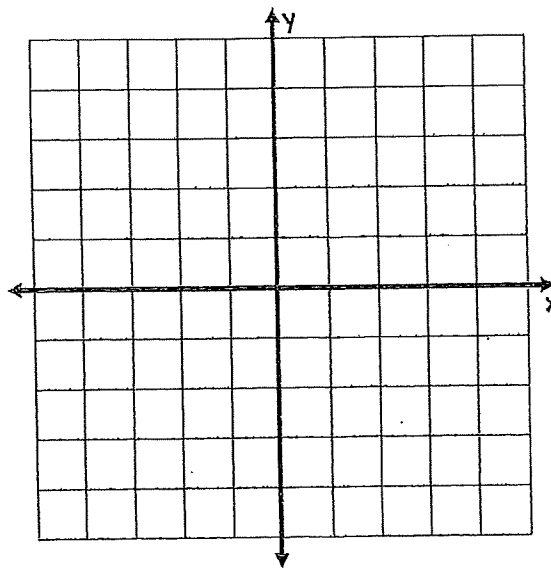
$$\frac{6}{5} = \frac{12}{x}$$

GRAPHING BY MAKING A TABLE

Graph the equations by using substitution to complete a table of values.

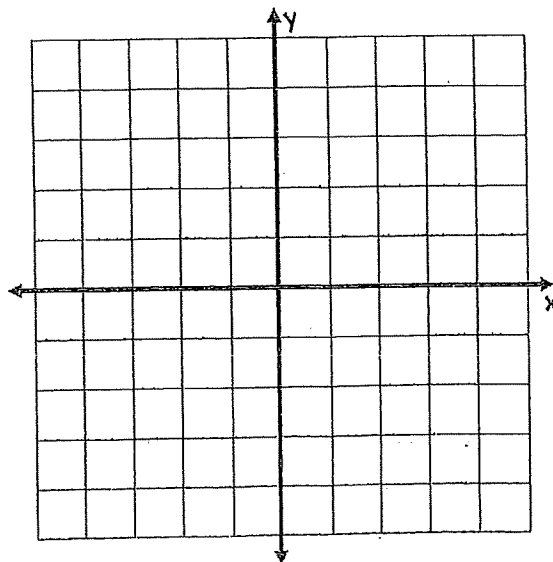
$$y = x + 2$$

x	y
-2	
-1	
0	
1	
2	



$$y = 2x - 1$$

x	y
-2	
-1	
0	
1	
2	



BASIC EXPONENT RULES

Simplify each expression using exponent rules.

EXPRESSION	SIMPLIFIED
$x \cdot x$	
$y \cdot y \cdot y \cdot y$	
$x \cdot x \cdot y \cdot y \cdot y$	
$y \cdot z \cdot z \cdot z \cdot z \cdot z$	
$x^2 \cdot x^3$	
$x^5 \cdot x^4$	
$y^6 \cdot y$	
$(x^4)^3$	
$(y^3)^2$	
$x^2 \cdot x \cdot y^3 \cdot y^4$	
$a^4 \cdot b^8 \cdot a^5 \cdot b^2$	
$c^3 \cdot d \cdot c^4 \cdot b$	
$\frac{x^5}{x^2}$	
$\frac{y^8}{y^3}$	

SEQUENCES & PATTERNS

Determine the pattern of each sequence and find the next 3 terms.

$$2, 4, 8, 16, 32, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$5, 10, 15, 20, 25, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$-5, -3, -1, 1, 3, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$0.4, 0.2, 0, -0.2, -0.4, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$3, -6, 12, -24, 48, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$\frac{3}{9}, \frac{4}{9}, \frac{5}{9}, \frac{6}{9}, \frac{7}{9}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$6, -3, -12, -21, -30, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

$$2, 5, 12.5, 31.25, 78.125, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$