

Name _____

This is due the first day of algebra class in 8th grade.

*Work
All
Alone!*

★ Let your parents know you have to do this so they can read the cover page and help encourage you to do a little bit each week.

Do your very best to UNDERSTAND the topics in this packet, you need to KNOW how to do them to be successful in algebra next year. You will take a QUIZ the first week of school on the important topics from this packet. (add, subtract, multiply, divide fractions, decimals, and integers. Order of operations. Evaluate expressions. Simple equations, distributive property and combine like terms. Convert fractions, decimals and percents.)

★ **PARENTS - Please DO NOT check every problem for them and fix the packet. We want to SEE where they are making mistakes so we know what to emphasize and who to keep any eye on. If they are having trouble with a topic they can ask you and you can explain on other problems but again please DO NOT go over this whole packet with them and don't have a tutor so either. Thank you.** ★

Teacher area – do not right below this.

If you have an X on the line next to a page – that means there is a comment written to you on that page from the teacher or that you had difficulty on that topic and need to concentrate on that more when we cover it in the first weeks of class.

- | | |
|---|---|
| Page 1 multiply fractions _____ | Page 10 add integers smartly _____ |
| Page 1 divide fractions _____ | Page 10 thinking problem _____ |
| Page 2 subtract integers _____ | Page 11 substitute x and y _____ |
| Page 3 mult/divide integers _____ | Page 11 rounding _____ |
| Page 3 simplify (PEMDAS) _____ | Page 11 divisibility _____ |
| Page 3 reduce fractions _____ | Page 11 tables _____ |
| Page 3 change to mixed # _____ | Page 11 mean/ median/mode _____ |
| Page 4 use formulas _____ | Page 12 what's my rule? _____ |
| Page 5 order of operations _____ | Page 13 change %, frac, dec _____ |
| Page 6 add, subtract, mult, divide decimals _____ | Page 14 find % of # _____ |
| Page 7 add, subtract, mult, divide integers _____ | Page 15 write variable expression _____ |
| Page 7 prime or composite _____ | Page 16 all integers _____ |
| Page 7 change to improper fractions _____ | Page 16 word problems _____ |
| Page 8 simplify the best way _____ | Page 17 combine like terms _____ |
| Page 8 proportions _____ | Page 17 distribute _____ |
| Page 9 add and subtract fractions (borrow) _____ | Page 17 solve equations _____ |

**** Bring this completed packet with you the first day you have math in September.****

If you are taking algebra next year as an eighth grader, then your teacher for next year expects you to complete this packet. It will count for a grade for the first marking period depends on how your teacher wants to use it.

Algebra is a huge jump from 7th grade math. Most of you only had to be in class, do the homework and take the test and you got a good grade. In algebra you will need to learn how to study and work much harder than you have ever done before. Don't worry though, if you belong in algebra and listen to your teacher and do what they teach you to do – you will do just fine. BUT, you must know your basic math to make algebra easier.

This packet is filled with topics that you should already know how to do. The better you are at these topics, the quicker we can get started on new topics. **You are expected to be able to add, subtract, multiply and divide: whole numbers, fractions, decimals and integers.**

Usually we teachers would love you to do work as soon as you get it. However, this packet is a little different. We'd like you to spread it out throughout the summer and **NOT** do it all in June. If you practice some of it right before coming back that will benefit you more. The eighth grade teachers have given summer packets the last couple of years and based on the children's reviews it seems to help them transition into eighth grade better. We hope it will help you be more successful as well. **SHOW ALL WORK NEEDED – ON THE PACKET!!!** You can check your answers with a calculator, but if you get it wrong – redo the problem to understand the correct work – the point of the packet is so you **understand** – not so you just get it done. If you use scrap paper – staple it to the back of the packet.

You are expected to complete the whole packet and if you've forgotten how to do any of it, you can:

1. read the packet – there are many hints on the page you are working on
2. google the topic – you can find almost anything on the computer
3. phone a friend – friends are great to hang out with and get help from
4. email me – cheryl.stetz@msdk12.net or any teacher below
5. ask a parent or sibling – if your parents can explain it – that is great

allison.unger@msdk12.net

judith.enderley@msdk12.net

bryan.manahan@msdk12.net

julia.cervone@msdk12.net

Allyson.Greenstein@msdk12.net



If you LOSE this – it is on the school website. I'll have emailed you a copy sometime towards the end of July, copy it from a friend (if they haven't done any of it yet), there will be copies in my mailbox at school, email me and ask me –

There is absolutely NO EXCUSE to not have it with you on the first day of algebra in 8th grade!!!!

PARENTS - Please DO NOT check every problem for them and fix the packet. We want to SEE where they are making mistakes so we know what to emphasize and who to keep an eye on. If they are having trouble with a topic they can ask you and you can explain on other problems but again please DO NOT go over this whole packet with them and don't have a tutor do it either. Thank you



We look forward to having you next year!

MORRIS SCHOOL DISTRICT
FRELINGHUYSEN MIDDLE SCHOOL
10 Jane Way Morristown, NJ 07960
Phone (973-292-2200) Fax (973-292-2458)



Dear Parents/Guardians & Students:

Welcome to Algebra, your first high school mathematics course! Algebra is the foundation for all the other mathematics courses you will take in high school and in college. This class is designed to help build a strong mathematical foundation and to expand your knowledge by analyzing many different mathematical concepts and real world situations. Your teachers are looking forward to an exciting year of hard work and important learning.

Given the rigor of the learning, and the importance of the content, taking Algebra requires your commitment, one that will be both challenging and rewarding. Students entering from A level or those who might not be used to the rigor of a high school level course might experience difficulty at first. There are many supports in place, and we are here to support your success. However, if a student begins to demonstrate continued difficulty, a level change might be necessary to ensure appropriate placement. That being the case, ***a marking period average of at least a 78 is required to maintain your current placement.***

In an effort to prepare for the work ahead, summer work is required. We will be sharing that with you in the coming days.

We look forward to a successful 2018-2019 school year. Have an enjoyable summer!

Sincerely,

Cheryl Stetz-Bamert & Cynthia Mauro
Algebra Teachers -Math Department

Name _____

There are 325 problems in this packet.

You got _____ wrong.

That means you got _____ correct. + you got _____ extra points from page 18

To get your % add the # correct + # extra points divided by the # of problems in packet.

This is your grade for the packet _____

You will put the percent grade in the points earned spot on your grade sheet and the worth amount is 100.

I will check off which statement is most true for you.

You did a wonderful job on this packet – the work is very well shown and if you do this in algebra it will help you be successful in the class.

You did a very good job on this packet.

You did a good job on this packet.

You did a good job on this packet but you will need to show much more work in algebra class in order to be successful.

You seem to have understanding of topics but the work ethic that will be needed in algebra is more that was seen in this packet.

You had difficulties on many topics in this packet and you will need to work hard in this class in order to be successful. (now, if you didn't work hard on it because it was summer work, then you need to decide to work harder in class to be successful)

SUPPLIES FOR MRS. STETZ BAMERT CLASSES!

- 3 ring binder – you may use it for another class as well – as long as that teacher is okay with that – you can also have an A day and a B day binder or one for everything
- 5 dividers for your 3 ring binder
- Pencils – all work is done in pencil
- Personal pencil sharpener
- Erasers – we all make mistakes in algebra and learn how to fix them
- ★ Dry erase markers – I love to use the dry erase board and the kids love them too – but I need each of you to have your own – Skinny tip ones are best
- Notebook paper – (I suggest getting one pack of the reinforced paper - it is more expensive but for the rules you need to keep it doesn't rip apart)
- Regular paper is just fine for the homework

BRING IN ALL SUPPLIES THE FIRST DAY OF CLASS WE WILL PUT OUR NOTEBOOK TOGETHER AS A CLASS



In addition to the packet you should:

Do some things to stimulate your brain over the summer.

Read

Play board games

Do puzzles

Play twenty questions

Go outside and get plenty of exercise

Don't watch too much TV or play too many video games!!!!!!!!!!

Play math games on the computer (Just google math games and you'll get more.)

Especially for fractions, integers, decimals – also thinking ones are awesome

<http://www.coolmath-games.com/> <http://www.khanacademy.org/#browse>

http://www.classzone.com/cz/books/algebra_1_2011_na/book_home.htm?state=NJ

ENJOY YOUR SUMMER AND WE LOOK FORWARD TO HAVING YOU IN CLASS NEXT YEAR!!!!!!

Concentrate on subtracting integers and multiplying fractions – those are the 2 topics that really mess up some students at the beginning of the year $8 - (-3)$ and $5/7 (63)$ ones like this

READ!

NO → $\frac{3}{1} = 3$

NO CALCULATOR!!!!

DO NOT LEAVE YOUR ANSWER OVER 1

ALL FRACTIONS MUST BE IN SIMPLEST FORM THE ENTIRE PACKET AND ALL NEXT YEAR!!!!

Examples.

$$\frac{4}{5} \times 1\frac{1}{6}$$

$$2 \frac{4}{5} \times \frac{7}{16} = \frac{14}{15}$$

$$10 \div 1\frac{1}{4} = 10 \div \frac{5}{4}$$

$$2 \frac{10}{1} \times \frac{4}{8} = \frac{8}{1} = 8$$

★ Multiply or divide - PLEASE CROSS CANCEL WHEN YOU CAN!

①. $\frac{1}{3} \times 1\frac{1}{3}$

②. $1\frac{1}{4} \times \frac{2}{3}$

③. $1\frac{1}{3} \times 6$

④. $5 \times 2\frac{1}{4}$

⑤. $1\frac{13}{15} \times 3\frac{1}{8}$

⑥. $5 \times \frac{3}{5}$

CROSS
CANCEL!

⑦. $\frac{7}{8} \times 8$

⑧. $\frac{9}{14} \times 28$

⑨. $35 \times \frac{6}{7}$

ALL
THE
Time

⑩. $1\frac{13}{15} \div 3\frac{1}{8}$

⑪. $5\frac{5}{6} \div 2\frac{1}{3}$

⑫. $4 \div 2\frac{2}{3}$

⑬. $6\frac{2}{3} \div 5$

⑭. $2\frac{7}{9} \div 1\frac{5}{6}$

Subtracting Integers.
No Calculator.

You may solve it any way you understand.

One Way → change the minus sign to a plus sign AND take the opposite of # after it.
Use your adding rules

The floating lines are negatives.

Subtract.

① $8 - 2$

② $10 - 5$
↓ ↓ et.
 $-10 + 5 = -5$

③ $7 - 12$
et.
 $-7 + 12 = -19$

④ $16 - 10$

⑤ $3 - 10$

⑥ $16 - -9$

⑦ $-4 - -9$

⑧ $-8 - 10$

⑨ $-33 - 57$

⑩ $16 - 49$

⑪ $-114 - 19$

⑫ $-88 - (-10)$

ex. work → Show it! will lose 5 points if you don't.

Evaluate each expression for the given value of the variable. Fill in, then solve.

⑬ $x - 8$ for $x = 10$

⑭ $-w - 10$ for $w = 15$

⑮ $15 - w$ for $w = 8$

→ $10 - 8 = 2$

⑯ $12 - t$ for $t = -8$

⑰ $15 - x$ for $x = -12$

⑱ $w - 20$ for $w = -15$

⑲ $-15 - x$ for $x = -10$

⑳ $-9 - x$ for $x = -20$

㉑ $-11 - d$ for $d = -15$

㉒ $y - (-10)$ for $y = -10$

㉓ $x - (-15)$ for $x = -5$

㉔ $a - (-12)$ for $a = 10$

②⑤ The altitude of Mt. Blackburn in Alaska is 16,390 feet. The altitude of Mt. Elbert in Colorado is 14,433 feet. What is the difference in the altitudes of the two mountains? Label answer.

②⑥ In January, Jesse weighed 230 pounds. By November, he weighed 185 pounds. How much did Jesse's weight change? Label answer.

NO CALCULATOR!

* When you multiply or divide 2 negative #'s they = a positive #.
 when you x or ÷ one negative # and one positive # they = a negative #.

NO
CALCULATOR

Multiply or divide. Integers.

① $\frac{-36}{9}$

② $\frac{-9}{-3}$

⑤ $\frac{10}{-2}$

⑥ $3(-1)$

⑨ $\frac{-14}{-7}$

⑩ $-3 \cdot 6$

⑬ $2(-8)$

⑭ $(-3)(-9)(-2)$

⑰ $-4(-6)$

⑱ $\frac{-18}{-6}$

Show the steps you do!

Simplify. Get answer.

⑳ $-4(2+3)$

㉑ $7(5-6)$

㉓ $2(-8+1)$

㉔ $-3(5-9)$

㉖ $3(-5-1)$

㉗ $6(2-4)$

Reduce these fractions.

ex. $\frac{18}{24} = \frac{3}{4}$

3) $\frac{4}{16} =$

4) $\frac{10}{25} =$

7) $\frac{10}{16} =$

8) $\frac{24}{32} =$

11) $\frac{14}{18} =$

12) $\frac{18}{3} =$

15) $\frac{28}{63} =$

16) $\frac{15}{21} =$

19) $\frac{4}{8} =$

20) $\frac{8}{4} =$

Change each improper fraction into a mixed number. ex. $\frac{21}{4} = 5\frac{1}{4}$

23) $\frac{22}{9} =$

24) $\frac{21}{2} =$

27) $\frac{35}{3} =$

28) $\frac{38}{12} =$

31) $\frac{17}{6} =$

32) $\frac{27}{4} =$

33) A company's stock price dropped \$10 a week for one year. How much will it have decreased by the end of the year? Label answer.

34) Yolanda lives 8 mi from school. She rides her bike to and from school for 5 days. How many miles does she ride in that time? Label answer.

no work -5
 just no formulas -3
 just no fill in -3
 no labels -2
 wrong labels -1
 If use π button instead of 3.14 -1

Use Calculator!

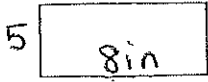
Use Reference Sheet or

internet for formulas!

Use 3.14 for π .

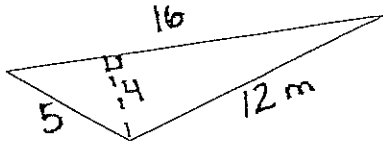
Careful some give you ugly ones, look at a couple of sites for best ones like you did in 6th/7th grade.

* Solve for what is asked for. Write the formula, fill in the numbers, solve and label.

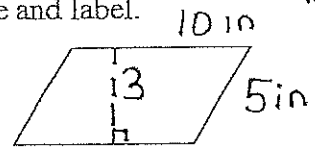


① perimeter =

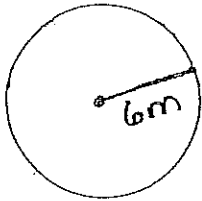
② area =



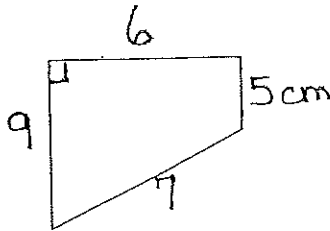
③ Area =



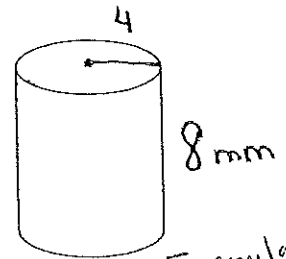
④ Area =



⑤ Circumference =

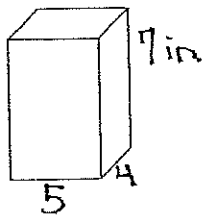


⑥ Area =

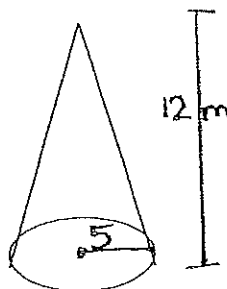


⑦ volume =

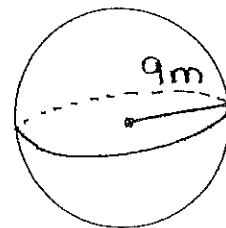
Formula 1st!
Always!



⑧ Surface Area =



⑨ Volume =



⑩ Volume =

NO CALCULATOR ON THIS PAGE

will lose 5 points if you just put the answer.

Follow the Order of Operations to get the answer. Show every step you do on the paper.

1. Parenthesis first
2. Exponents
3. Multiply and divide or divide and multiply – whichever comes first/ do first.
4. Add and subtract or subtract and add – whichever comes first / do first



x means multiply here

① $14 - 6 + 2$

② $6(6 - 4)$

③ $3 + (5 + 2)^2$

④ $5(3 + 6)$

⑤ $(4 - 3) \times 5$

⑥ $9 + 6 \times 4 - 1$

⑦ $15 \div 5 \times 3$

⑧ $\frac{12}{5 + 1}$

⑨ $\frac{4 \times 8 + 3}{6 + 5 - 4}$

⑩ $9 + (6 - 2)$

⑪ $9 + 6 \times 2$

⑫ $8[(3 + 1) - 6]$

⑬ $3[(6 + 1) \times 2] - 3 \times 10$

⑭ $(2 - 1)(6)$

⑮ $9 + (6 + 2) \times 3$

NO CALCULATOR ON THIS PAGE**decimals**

Solve. Show all your work on this paper. This is the only page of this, so if you need more practice, DO SO. Make up problems, do them, then pick up a calculator to check your made up problems.

$(1.) \quad 5.2 + 6.4$

$(2.) \quad 93.1 + 1.24$

$(3.) \quad 634.78 + 53.982$

$(4.) \quad 8.2 - 3.7$

$(5.) \quad 19 - 12.31$

$(6.) \quad 492.617 - 236.35$

$(7.) \quad 6.3 \times 4.7$


$(8.) \quad 7.1 \times 0.45$

$(9.) \quad 91.2 \times 5.36$

$(10.) \quad 0.2 \overline{)9.46}$

$(11.) \quad 0.5 \overline{)96}$

$(12.) \quad 0.12 \overline{)2.568}$

 Many students forget how to divide decimals – google a video if you need it!!!!

NO CALCULATOR!

You must know your times tables up to 10 time 10 perfectly. It will also be very helpful if you KNEW the following exponent problems.

If you need to do arithmetic to get them now, do it on this paper. Then **MEMORIZE** them for algebra for September!

① $11^2 =$

② $12^2 =$

③ $13^2 =$

④ $14^2 =$

⑤ $15^2 =$

⑥ $2^3 =$

⑦ $3^3 =$

⑧ $4^3 =$

⑨ $5^3 =$

⑩ $2^4 =$

⑪ $3^4 =$

⑫ $2^5 =$

You should also be able to use info from those to do ones like these.

⑬ $20^3 =$

⑭ $300^2 =$

Solve each problem.
X here is multiply

⑮ $2 - (-2) =$

⑯ $10 - 7 =$

⑰ $11 - - 4 =$

⑱ $(-1) - (-3) =$

⑲ $(-10) - 47 =$

⑳ $13 + (-29) =$

㉑ $2 + -15 + 4 =$

㉒ $-24 \div -4 =$

㉓ $35 \div -5 =$

㉔ $6 \times -4 =$

㉕ $3 \times -4 \times -2 =$

㉖ $-8 \times -2 \times -3 =$

㉗ $-4 \times -10 =$

㉘ $\frac{5}{8} \times -16 =$

㉙ $(-1)^8 =$

Change each mixed number into an improper fraction.

⑳ $2 \frac{5}{6} =$

㉑ $9 \frac{3}{10} =$

㉒ $10 \frac{1}{2} =$

㉓ $7 \frac{3}{7} =$

㉔ $5 \frac{3}{8} =$

㉕ $12 \frac{1}{3} =$

Tell whether each number is prime, composite or neither. Give one factor to tell why you said composite. Use divisibility rules to help you decide.

You may use a calculator to help you decide on # 42 if you want.

36) 13 _____

37) 111 _____

38) 94 _____

39) 1 _____

40) 185 _____

41) 90 _____

42) 143 _____

Evaluate each expression for the given value(s) of the variable. *Get the answer. Show steps*

① $8(x+7)$ for $x = 17$

② $6m - 7n$ for $m = 12$ and $n = 7$

Evaluate each expression for the given value of the variable. *Get answer.*

③ $t + 8$ for $t = -12$

④ $b + (-5)$ for $b = 3$

⑤ $x + 11$ for $x = -19$

Add.

⑥ $-3 + 8$

⑦ $-4 + (-5)$

⑧ $6 + (-9)$

⑨ $12 + (-7)$

Subtract.

⑩ $-9 - 7$

⑪ $15 - (-3)$

⑫ $-19 - (-4)$

⑬ $32 - (-17)$

Multiply or divide. *Get answer.*

⑭ $-3(6)$

⑮ $-4(-5)$

⑯ $\frac{60}{-12}$

⑰ $16(-2)$

Simplify. *Get answer. Show your steps here.*

⑱ $12(8 - 12)$

⑲ $-6(-3 + 7)$

⑳ $11 + 3(4 - 9)$

㉑ $7 - 8(4 + 6)$

Solve for x - Proportions.

22. $\frac{5}{8} = \frac{x}{32}$

23. $\frac{9}{12} = \frac{3}{x}$

24. $\frac{7}{9} = \frac{42}{x}$

25. You MUST use a proportion to solve to get credit. There are 3 boys for every 7 girls in the group. If there are 24 boys in the group, how many girls are there?

Not many of these - you must be a master of fractions!
 Write each answer in simplest form.

Get common denominator.
 Get new numerators
 Add or subtract the new numerators.
 Keep common denominator the same.
 Add or subtract whole #'s
 Simplify.
 *(If you can't subtract numerators you must borrow.)

①
$$\begin{array}{r} \frac{1}{6} \\ + \frac{3}{8} \\ \hline \end{array}$$

②
$$\begin{array}{r} \frac{3}{10} \\ + \frac{4}{15} \\ \hline \end{array}$$

* *
DO NOT NEED TO CHANGE to IMPROPER 1st - That makes it harder.

③
$$\begin{array}{r} 1\frac{3}{4} \\ + 1\frac{3}{10} \\ \hline \end{array}$$

④
$$\begin{array}{r} 3\frac{7}{15} \\ + 2\frac{1}{6} \\ \hline \end{array}$$

⑤
$$\begin{array}{r} 5 \\ + 3\frac{1}{2} \\ \hline \end{array}$$

⑥
$$\begin{array}{r} \frac{1}{4} \\ - \frac{1}{6} \\ \hline \end{array}$$

⑦
$$\begin{array}{r} 4\frac{8}{9} \\ - 2\frac{5}{6} \\ \hline \end{array}$$

⑧
$$\begin{array}{r} 13\frac{3}{8} \\ - 12\frac{1}{3} \\ \hline \end{array}$$

⑨
$$\begin{array}{r} 16 \\ - 14\frac{5}{8} \\ \hline \end{array}$$

⑩
$$\begin{array}{r} 7\frac{3}{10} \\ - 2 \\ \hline \end{array}$$

⑪
$$\begin{array}{r} 23\frac{1}{2} \\ - 17\frac{5}{8} \\ \hline \end{array}$$

⑨

READ

ADD. Group your numbers so that it makes your addition as easy as possible. **CIRCLE** the numbers you start with. Show that answer and then get your final answer. **DO IT LIKE I SHOWED ON #1.**

Some problems are obvious what to do first. You do NOT have to always put all positives together first and all negative together first. Sometimes that is the easiest (that's why your 7th grade teacher may have told you to do it that way), but sometimes it's easier to do a positive with a negative because it will cancel out some of the numbers and make it smaller to work with. Some you may need to look for it. Others it really doesn't matter which you do first - it is equally easy or hard.

1. $(28) + (-43) + (-48)$

$-20 + (-43)$

-63

2. $50 + (-48) + (-9)$

3. $44 + (-20) + (-42)$

4. $63 + (-14) + 7$

5. $67 + 3 + 74 + (-73)$

6. $90 + 53 + (-92)$

7. $(-31) + 77 + (-3) + 22$

8. $62 + (-45) + (-55)$

9. $47 + 29 + (-37)$

10. The average amount of candy that Anne, Sara and Julie got this Halloween was exactly 72 pieces of candy. Julie got 100 pieces. Anne got 10 more pieces than Sara. How many pieces of candy did Anne and Sara get? Show your work here. (You don't know the ALGEBRA to do it, so most of you will just need to guess and then check to see if it is correct - keep trying until it works.)

Julie's candy = _____

Anne's candy = _____

Sara's candy = _____

Don't have
someone I
help you!
I want to see
your
thinking.

show the proof that your answer has an average of exactly 72 (find the average of your numbers)

Determine whether each ordered pair is a solution of $y = x + 6$.

① (3, 8) _____

② (5, 11) _____

③ (13, 7) _____

④ (9, 15) _____

Show Work
Write
Yes or No

Show like this!

$8 = 3 + 6$
 $8 = 9$
NO

Determine whether each ordered pair is a solution of $y = 2x + 1$.

⑤ (0, 3) _____

⑥ (3, 6) _____

⑦ (5, 11) _____

ROUND!

⑧ Round to the nearest 10.
562 _____

⑨ Round to the nearest 100.
5689 _____

⑩ Round to the nearest 1000.
4598 _____

⑪ Round to the nearest 10th.
874.397 _____

NO CALCULATOR

Tell if each number is divisible by 2, 3, 5, 10. You should know divisibility rules to make this quick & simple. Write the numbers it IS divisible by. Ex. 24 2 and 3

⑫ 75 _____

⑬ 100 _____

⑭ 22 _____

⑮ What is the rule for divisible by 3?

⑯

How do you find if a # is divisible by another # if you DO NOT KNOW a quick divisibility rule for it? Do that to find out if 1,456 is divisible by 13.

Do work there

⑰ $y = 3x$ for $x = 1, 2, 3, 4, 5$

x	3x	y	(x, y)
1	3 · 1	3	(1, 3)
2			
3			
4			
5			

⑱ $y = 4x - 1$ for $x = 1, 2, 3, 4, 5$

x	4x - 1	y	(x, y)
1			
2			
3			
4			
5			

Fill in tables.

Use the following numbers for 19-22. Do not Round! Show work needed.

10, 20, 30, 40, 30, 20, 20, 20

⑲ Mean = _____

⑳ Median = _____

㉑ Mode = _____

㉒ Range = _____

㉓

What's My Rule?

Sometimes you are given a set of ordered pairs and need to find a function rule that describes how to get the outputs from the inputs.

Example Write a function rule for the ordered pairs in the table.

To get each y -value, double the corresponding x -value and then add 1.

* The rule is $y = 2x + 1$

Don't want to see $x^2 + 1$ when you multiply by 2 you write it as $2x$

x	y
3	7
5	11
6	13
8	17

Check the rule by making sure each input (x -value) in the table gives the corresponding output (y -value).

$2(3) + 1 = 7$ ✓

$2(5) + 1 = 11$ ✓

$2(6) + 1 = 13$ ✓

$2(8) + 1 = 17$ ✓

always in front of variable $4x, 6x$ never x^6
 (-2 if not written correctly)

Write a function rule for the ordered pairs in each table. Use the form modeled above.

1.

x	y
1	5
2	6
4	8
7	11

Rule: $y =$ _____

2.

x	y
0	0
2	4
5	10
9	18

Rule: _____

3.

x	y
-1	-9
0	-8
4	-4
10	2

Rule: _____

4.

x	y
-2	-10
-1	-5
3	15
7	35

Rule: $y =$ _____

5.

x	y
1	5
2	7
3	9
4	11

Rule: _____

6.

x	y
0	1
2	7
5	16
9	28

Rule: _____

7.

x	y
-3	-7
0	-1
1	1
4	7

Rule: _____

8.

x	y
-1	-1
2	2
6	6
9	9

Rule: _____

9.

x	y
-2	4
2	4
3	9
5	25

Rule: _____

Calculator OK
but not really
needed.

Change to a Percent

① $\frac{17}{20} =$

② $\frac{13}{50} =$

③ $\frac{31}{25} =$

④ $\frac{3}{10} =$

⑤ $0.16 =$

⑥ $9.2 =$

⑦ $0.4 =$

⑧ $0.162 =$

Change to a fraction. (lowest terms)

⑨ $3\% =$

⑩ $45\% =$

⑪ $19\% =$

⑫ $125\% =$

⑬ $0.7 =$

⑭ $0.75 =$

⑮ $9.19 =$

⑯ $0.123 =$

Change to a decimal.

⑰ $72\% =$

⑱ $35\% =$

⑲ $2\% =$

⑳ $917\% =$

㉑ $\frac{5}{8} =$

㉒ $\frac{1}{4} =$

㉓ $\frac{1}{2} =$

㉔ $\frac{4}{9} =$

㉕ Of the 150 students in the eighth grade, 6 were absent yesterday. What percent of eighth graders were absent yesterday? Round to whole %. Use Calculator. _____

㉖ A student has read 23 out of 41 pages assigned for homework. What percent of the pages has the student read? Use Calculator. Round to the nearest whole percent. _____

13

- 5 no. work
possibly all marked wrong

I MUST see
the work like I
showed →
if you do it different/show me!

Translate each sentence into an equation.
Solve the equation.
Answer the question.

① 20% of 65 is what number?

② 18 is what % of 30?

③ 5 is 4% of what number?

④ 7% of 92 is what number?

⑤ 45% of what number is 360?

⑥ what % of 80 is 50?

⑦ 110% of 55 is what number?

⑧ what % of 40 is 50?

⑨ 90% of what number is 72?

⑩ $7\frac{1}{2}\%$ of 60 is what number?

May use a
Calculator

of means multiply
is means =

2 WAYS

Ⓧ 20% of what is 40?

$$\cdot \frac{20}{100} \times n = \frac{40}{100}$$

$$n = 200$$

OR
proportion

$$\frac{20}{100} = \frac{40}{n}$$

$$\frac{4000}{20} = \frac{20n}{20}$$

$$200 = n$$

Some kids
have trouble
on this
page. May
want to
google a
video for
it. You
did this
last year

Try HARD!

*** This is the first lesson of our algebra class in Sept. The more of these words that you know the meanings for - the EASIER it will be for you in Sept.

Read
*

Translate the following phrases into mathematical expressions.

1. The sum of a number and ten _____
2. Eighteen more than a number _____
3. The product of a number and three _____
4. Five less than a number _____
5. The difference of a number and seven _____
6. Five multiplied by the sum of a number and six _____
7. A number decreased by eight _____
8. Three times the difference of a number and one _____
9. Three fourths of a number _____
10. The quotient of a number and nine _____
11. Double a number increased by twelve _____
12. Eight subtracted from a number _____
13. Nine added to, a number divided by ten _____
14. Triple a number _____
15. Sixteen less than twice a number _____

Translate these sentences.

16. A number increased by two is equal to seven. _____
17. A number plus four is less than fifteen. _____

Reduce these fractions but leave them improper. In algebra we leave it like that sometimes. Ex.

18. $\frac{35}{20} =$ 19. $\frac{18}{10} =$ 20. $\frac{44}{16} =$ 21. $\frac{30}{24} =$

$\frac{21}{15} \div 3 = \frac{7}{5}$
done

Multiply. I want to see the canceling.

22. $72 \times \frac{3}{8}$ 23. $\frac{4}{17} \times 17$ 24. $\frac{2}{15} \times 3$

Show work needed

Practice with integers. Show all work needed on this paper - no calculator allowed.

- ① $-41 + -125$
- ② $79 - 88$
- ③ $-3(-4)$
- ④ $-125/5$
- ⑤ $82 + -95$
- ⑥ $27 - (-46)$
- ⑦ $-31 - -32$
- ⑧ $-34 + 52 + -18$
- ⑨ $(-5)(-2)(-3)$
- ⑩ $-25/5(6)$
- ⑪ $100(-4)(40)$
- ⑫ $\frac{54}{9} + \frac{33}{11} + \frac{24}{8}$

Solve each problem. Show the work that you did in the space to the right of the problem. **BE NEAT!!!**

- ⑬ How much time is there from 8:45 in the morning until 3:25 in the afternoon? _____
- ⑭ You get paid \$5.50 an hour to babysit. How much do you make if you babysit 6 hours? _____
- ⑮ You make \$51 for 6 hours of work. How much do you make per hour? _____
- ⑯ List all the rectangles that have an area of (only use whole numbers ex. 1 by 6 and 2 by 3 have area of 6) 36 square inches. _____
- ⑰ List all the rectangles that have a perimeter of (again only use whole numbers) 18 meters. _____
- ⑱ Paul works as a tutor. He gets \$15 an hour. He charges a start up fee of \$12. If he has tutored you for 8 hours, how much have you paid him? _____
- ⑲ Julia buys chairs. The cost of the first chair is \$18. Each additional chair costs \$15. How many chairs did she get for \$138? _____
- ⑳ If you have an 80 average so far in class after 3 tests, what would you need to get on the fourth test to have an average of 83? _____

on whole page

SIMPLIFY **COMBINE LIKE TERMS** (all x here are variables)

① $3x + 2x$

② $3y + 4 + 2y$

③ $5c - 8c$

④ $2x + 3x^2 + 5x$

⑤ $3x + 4y - 8x + 10y$

⑥ $9h + h$

Simplify. **Distribute.**

⑦ $3(2x + 3)$

⑧ $9(4x - 7)$

⑨ $-3(2x - 4)$

⑩ $2(2y + 3) + 4(5y + 6)$

⑪ $6(x + 3) - 2(4x - 3)$

Solve each equation. **SHOW EACH STEP** to solve. →

⑫ $x - 6 = 9$

⑬ $3x = 15$

⑭ $\frac{x}{4} = 8$

$5x + 7 = 23$
 $-7 \quad -7$
 $5x = 16$
 $\frac{5x}{5} = \frac{16}{5}$
 $x = \frac{16}{5}$

⑮ $4x + 3 = 23$

⑯ $\frac{x}{3} - 4 = 7$

⑰ $3x + 2x = 35$

You may not know how to do these two. That is OK, just try.

⑱ $5x + 2 = 3x + 10$

⑲ $3(2x + 4) = 36$

Work Alone !!

CHALLENGE EXTRA

NO CALCULATOR

You do not need to do this. BUT you should want to challenge yourself to see if you can do it. Give a good effort and see how much you know.

Show all work here!!!

1. Solve if $y = \frac{1}{4}$ *(Keep it as Fractions)*
 $6y^2 + 3y + 12$

2. Solve if $a = 6$ $b = 11$ and $c = 3$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

3. Solve. Show every step (x multiply)

$$\frac{5 + 6 \times 2 - (3 - 2)^{10}}{9 \div 3 \times 3 + (4 - 1)^2}$$

4. If car tolls are \$1.25

and truck tolls are \$2, then if 23 vehicles went through the toll booth and collected \$40, how many cars were there? How many trucks?

5. The six students in the book club read a total of 20 books. How many did each child read?

- The girls read the same amount as the boys
- Jill and Kim read the same as each other
- Tim reads one more book than Tom
- Joe read the same as Tim and Tom combined
- Pam read one more book than Joe

6. How many rectangles are there in total?

