

Summer Math Packet: 7th to 8th Grade

Dear Students and Parents,

This summer, we encourage you to continue to practice your mathematics at home. Practicing math skills over the summer can keep the brain's pathways for computation and mathematical vocabulary strong.

Please make sure to follow the suggested directions for the best outcomes:

1. **Do NOT use a calculator (unless specified).** Take time to "grow your brain" and practice your math facts.
2. **Show all work!** An important aspect of mathematics is being able to communicate the process you use to arrive at your answer. It also provides an opportunity to review your thinking when making corrections to your work.
3. **Be neat and organized!** Part of success in math is being able to organize your work and keep track of your calculations and steps. Use all the paper you need to neatly show your work.
4. **Box your final answers (another organizational strategy).**
5. **Do not rush!** Take advantage of the summer pace and see if you digest more of what you're working on.
6. **If you are stuck on a problem, read the example problems provided at the beginning of each exercise.** If you are still stuck, check out one of the math websites listed below.
7. **Check your work!** If you got an incorrect answer, go back and try to figure out your error. Correcting your work and figuring out where you went wrong is monumental in the learning process.

Resources:

For help with a topic: www.purplemath.com and select 7th grade on the left hand column, then select the topic from the top.

For Math Fact Practice: www.aplusmath.com and select flash cards. You can switch the operation and difficulty each time.

Another resource for help relearning a topic: www.khanacademy.org

Math Learning Games: www.funbrain.com

Another suggestion: If you or your child has a cellular phone, there are free math apps that you can play on and build math skills. There are many out there. Try one out!

Decimal Operations

1. $9.372 + 3.029$

2. $11.322 - 3.825$

3. $18.23 - 5.409 + 2.55$

4. $2.35 * 7.11$

5. $1.023 * 3.5$

6. $23.25 \div 0.7$

7. $0.54723 \div 2$

8. $8.752 \div 0.12$

For #9-12 simplify the fraction by finding common factors & eliminating them.

9. $\frac{4}{10}$

10. $\frac{24}{40}$

11. $\frac{81}{27}$

12. $\frac{9}{21}$

For #13-16, simplify each answer as much as possible by cross cancelling factors.

13. $\frac{4}{5} * \frac{10}{18}$

14. $\frac{8}{9} * \frac{3}{4} * \frac{10}{6} * \frac{12}{15}$

15. $\frac{27}{38} \div \frac{3}{7}$

16. $\frac{35}{38} \div \frac{5}{19}$

Order of Operations

Simplify each expression using PEMDAS!

1) $2 * 6 \div 4 + 7 - 8 * 3 + 77 \div 11$

4) $13 + 2x - 5 - 8x + 7 * (4x + 1)$

2) $72 \div 12 + 2^2 - 5 * 2 + 3 + 2 * (6 - 5)$

5) $-5x - 8 + (8 \div 2) + 7 * 6$

3) $7 * (12 - 5) + 9 \div (-3) + 7 * (-2)$

6) $3x - 6 + 4 * 8 - 3x + 2y - 90 \div 5$

Absolute Values & Negative Integer Operations

Simplify each statement as much as possible.

1. $|-4|$

2. $-|-5|$

3. $(-3)^2$

4. -5^3

5. $-4 * 5$

6. $-7 + 3$

7. $-8 * -7$

8. $-28 \div -7$

9. $-42 + 27$

10. $-22 - (-8)$

11. $\frac{-42}{7}$

12. $37 - 83$

13. $-42 \div 2 + (7 * 3) + 8 - (-5) - 4 * 2$

14. $|-2| + 8^2 - (-3)^2 + 7 * 2 - 22 \div 2$

15. $|-4^3| - 8 * 7 + (-(-(-2) + (-\frac{48}{6})) + (-3) * (-2)$

Operations with Fractions

Reduce answers as much as possible by finding common factors.

#1. $\frac{2}{5} + \frac{3}{7}$

#2. $\frac{4}{28} - \frac{7}{9}$

#3. $3\frac{1}{3} + 4\frac{7}{8}$

#4. $-\frac{7}{25} - \frac{8}{15}$

#5. $\frac{2}{25} * \frac{15}{22}$

#6. $\frac{27}{31} * -\frac{62}{81}$

#7. $-\frac{10}{21} * -\frac{49}{35}$

#8. $4\frac{1}{3} * 5\frac{2}{5}$

#9. $-\frac{42}{55} \div \frac{28}{11}$

#10. $\frac{25}{28} \div \frac{15}{32}$

#11. $-\frac{8}{5} \div \frac{6}{35}$

#12. $\frac{125}{128} \div \frac{65}{72}$

13. You have $8\frac{4}{5}$ total cups of lemonade, and you want to share it with your friends. Each friend gets $\frac{1}{10}$ of a cup to drink.
How many friends do you have?

14. You have $10\frac{2}{7}$ ounces of candle wax to make an army of tiny, beautiful-smelling candles. You are able to make a total of 12 candles from the wax. How much wax is in each candle? (Hint: write an equation first.)

Exponents & Expressions

For #1-4, rewrite as multiplication problems, then solve.

#1. $(-5)^4$

#2. $(\frac{1}{2})^3$

#3. -4^2

#4. $(-\frac{2}{3})^3$

For #5-7, rewrite as exponents, and solve.

#5. $2 * 2 * 2$

#6. $(\frac{1}{4} * \frac{1}{4})$

#7. $-1 * -1 * -1 * -1 * -1 * -1 * -1$

Simplify the expression by combining terms.

#8. $-2(x - 3) + 4x$

#9. $4x - 1(6 + 2x)$

#10. $4x - 3 + 6z + 7 - 10x$

#11. $(6a + 3x) - (4a - 7x)$

#12. $(-4y - 8x) + (7y + 10x)$

#13. $(5x - 2a) - (-4x + 7a)$

#14. $(15x - 3y) + (-12x - y)$

Find the greatest common factor of the following terms.

#15. 84, 128

#16. $147x, 105x^2$

#17. 216, 288, 72

Solving Equations

Solve each equation for the variable.

#1. $2x + 6 = 8$

#2. $-4(x - 2) = 16$

#3. $\frac{x+7}{3} = 12$

#4. $\frac{5x-3}{2} = 11$

#5. $-3x - 7 = x + 9$

#6. $4(2x + 6) = 16x + 8$

#7. $2(x - 4) = 22$

#8. $-5x = 35$

#9. $\frac{x}{4} + 3 = 7$

#10. $-\frac{2x}{5} = 10$

#11. $-\frac{x-5}{2} = 11$

#12. $\frac{2x+1}{2} = 3x$

Factor out any common factors from each expression.

#13. $81x + 27$

#14. $3x - 9$

#15. $-48 - 64x$

Inequalities

For #1-2, write a sentence that represents the inequality.

#1. $x < 7$

#2. $x \geq -4$

For #3-4, tell if the given number makes the inequality TRUE or FALSE.

#3. $2x < 10$, value = -3

#4. $\frac{x+7}{6} \geq -5$, value = 5

Solve the inequalities, showing each step. Then graph the solutions.

#5. $x + 7 \leq -2$

#6. $\frac{3}{5}x > 9$

#7. $7 - 2x \geq 5$

#8. $-x - 8 < 3$

#9. $-\frac{5}{6}x \geq 15$

#10. $2x - 5 > 3x + 6$

#11. $3x - 8 < 3x + 7$

#12. $3x + 7 > 4$

#13. $-2x + 7 < 9x - 2$