

# WELCOME TO 7th GRADE HONORS MATHEMATICS!



**This summer work includes a variety of skills that are building blocks for next year's study of mathematics. To prepare you for a great beginning, some review work is required. Please bring your completed packet when we return in August (the second week of school will be fine!) Please complete the problems directly on the packet (you may print it out if you didn't get one prior to the end of school or pick a copy up from the main office.)**

**The problems are organized by the 6th grade units of study. Also included are Math IXL lessons that can assist with a review or some extra practice on any given topic. You DO NOT HAVE to do the IXL work; it is there to help you if you get stuck on a concept. Near each type of problem is a set of parentheses that includes the helpful IXL Level and Lesson (for example: H E.5 means go to Level H and find Lesson E.5) and after the parentheses is the IXL CODE you can enter into the search bar on your IXL homepage to get to that same helpful lesson.**

**If you have any questions, contact Mrs. Estep via email @[testep@sylvaniaschools.org](mailto:testep@sylvaniaschools.org) and THANK YOU in advance for your dedication to learning. I can't wait to meet you!!!**

**Mrs. Estep**

6<sup>th</sup> → 7<sup>th</sup> Summer Work  
for Honors Math

Prime Time (1)

List all the factors of each number.

(H E.5) CODE: VTM

Name \_\_\_\_\_

1. 12

2. 45

3. 41

Tell whether each number is prime or composite. (H E.3) CODE: DFC

4. 53

5. 86

6. 95

7. 17

Tell whether the second number is a multiple of the first. (F O.3) CODE: EFB

8. 2;71

9. 1;18

10. 3;81

11. 4;74

Write the prime factorization. Use exponents where possible. (H E.7) CODE: WLU

12. 78

13. 126

(H E.12) CODE: ZBB

14. At a store, hot dogs come in packages of eight and hot dog buns come in packages of twelve. What is the least number of packages of each type that you can buy and have no hot dogs or buns left over?

15. Find the least common multiple and the greatest common factor for each pair of numbers:

(H E.8) AMB  
(H E.10) NGA

a. 8 and 12

b. 7 and 15

c. 11 and 17

d. 36 and 108

(H I.8) CODE: P9A

Comparing Bits and Pieces (2)

Write each mixed number as an improper fraction.

1.  $1\frac{7}{8}$

2.  $2\frac{3}{4}$

3.  $7\frac{1}{3}$

Write each decimal as a fraction. (H I.10) CODE: HTJ

4. 0.6

5. 1.25

6. 0.74

7. 0.29

Write each improper fraction as a mixed number in simplest form. (H I.8) CODE: P9A

8.  $\frac{15}{2}$

9.  $\frac{8}{3}$

10.  $\frac{5}{2}$

11.  $\frac{7}{3}$

Write each fraction as a decimal. (H I.9) CODE: 62Y

12.  $\frac{9}{100}$

13.  $\frac{7}{25}$

14.  $\frac{3}{50}$

15.  $\frac{1}{125}$

Order from least to greatest. (G K.11) CODE: T76

16.  $\frac{1}{4}, \frac{1}{3}, \frac{1}{6}$

17.  $\frac{1}{2}, \frac{5}{6}, \frac{7}{8}$

18.  $\frac{1}{4}, \frac{2}{5}, \frac{3}{8}$

Compare each pair of fractions. Use  $<$ ,  $>$ , or  $=$ . (H I.6) CODE: SX9

19.  $\frac{7}{8} \square \frac{3}{10}$

20.  $\frac{4}{5} \square \frac{1}{2}$

21.  $\frac{6}{12} \square \frac{4}{8}$

22.  $\frac{7}{15} \square \frac{11}{15}$

Write each of the decimal numbers in words. (G G.3) CODE: FAG

23. 12.873

24. 8.0552

25. In a class of 24 sixth-graders, 25% walk to school,  $\frac{1}{8}$  ride bicycles to school,  $\frac{1}{3}$  take the bus to school, and the remainder of the class are driven to school by their parents or guardians. (H S.13) PE7  
(H K.3) 88T
- How many students in the class walk to school? Explain your reasoning.
  - How many students in the class ride bicycles to school? Explain your reasoning.
  - How many students in the class take the bus to school?
  - What fraction of the class are driven to school by their parent or guardian? Explain your reasoning.
  - What percentage of the students in the class walk, ride bicycles or the bus, or are driven to at school by a parent or guardian? Explain your reasoning.

Order each set of decimals on a number line. (H F.8) CODE: AXN

26. 0.2, 0.6, 0.5

27. 0.26, 0.3, 0.5, 0.59, 0.7



28. Fill in the missing parts of the table. (H S.4) CODE: ZAV

Fraction	Decimal	Percent
$\frac{3}{10}$		
	0.88	
		35%
$1\frac{1}{4}$		
	0.625	
		275%

NOTE: \* Do NOT use a calculator on this unit's work!

(H J.4) CODE: WTS

Let's Be Rational (4)

1. Jack and Helen are making cookies. The recipe says to combine  $\frac{1}{2}$  cup of butter with  $\frac{3}{4}$  cup chocolate chips and  $\frac{3}{8}$  cup chopped nuts.

a. When these three ingredients are mixed together, how many cups of the mixture will Jack and Helen have? Show your work.

b. Jack and Helen decide to triple the recipe.

i. How many cups of butter will be needed?

ii. How many cups of chocolate chips will be needed?

iii. How many cups of chopped nuts will be needed?

c. When the ingredients for the tripled recipe are combined, how many cups of the mixture will Jack and Helen have?

2. Find each quotient. Show your strategy! (H L.5) DS2

a.  $12 \div \frac{1}{2}$

b.  $12 \div \frac{1}{3}$

c.  $3 \div \frac{2}{3}$

d.  $\frac{7}{8} \div 4$

e.  $1\frac{2}{3} \div 6$

f.  $\frac{5}{6} \div \frac{1}{3}$

Estimate each sum. Use the benchmarks  $0$ ,  $\frac{1}{2}$ , and  $1$ .

(G L.10) 9JR

3.  $\frac{5}{16} + \frac{5}{8}$

4.  $\frac{10}{12} + \frac{4}{5}$

5.  $\frac{1}{10} + \frac{1}{2}$

(H L.1) CODE: DXW

6. How many bows can you make from 5 meters of ribbon if making a bow takes  $\frac{1}{4}$  of a meter of ribbon?

Find each sum or difference. Show your strategy! (H J.6) CODE: TPZ

7.  $7\frac{1}{3} + 5\frac{11}{12}$

8.  $11\frac{7}{10} + 4$

9.  $2\frac{2}{3} + 4\frac{3}{4}$

10.  $10\frac{11}{16} - 3\frac{7}{8}$

11.  $8\frac{1}{3} - 2\frac{3}{8}$

12.  $9 - 3\frac{2}{5}$

(G M.1) CODE: X8E

13. A kitten eats  $\frac{1}{4}$  cup of cat food. Another cat in the same household eats 6 times as much. How much food does the cat eat?

14. Ken used all of a piece of lumber to build a bookshelf. If he made three shelves that are each  $2\frac{1}{2}$  feet long, how long was the piece of lumber?

Find each product. Show your strategy! (H K.6) (H K.13) BNT Z9M

15.  $\frac{2}{3}$  of  $\frac{1}{4}$

16.  $\frac{2}{5} \times \frac{1}{2}$

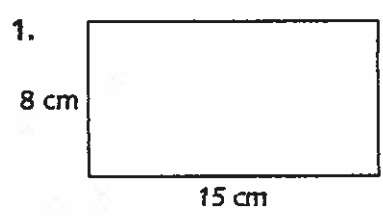
17.  $\frac{1}{4}$  of  $\frac{4}{5}$

18.  $\frac{5}{6} \times \frac{2}{5}$

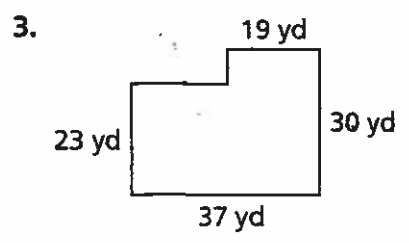
19.  $3\frac{1}{3} \times 3\frac{3}{10}$

20.  $5\frac{1}{2} \times \frac{2}{5}$

21.  $1\frac{2}{3} \times 3\frac{3}{4}$



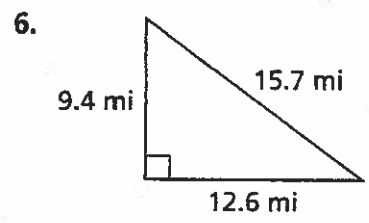
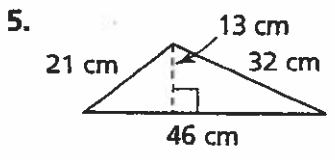
2.  $l = 18 \text{ m}, w = 12 \text{ m}$



Solve. (H.FF.6) CODE: C85

4. The area of a triangle is 6 square units. Both the height and the length of the base are whole numbers. What are the possible lengths and heights?

Find the area of each triangle. **Show formula work!**

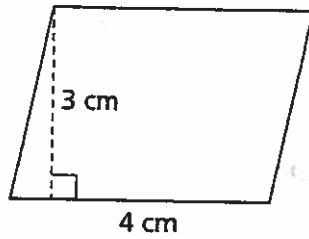
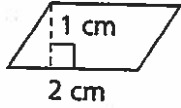


7. Tracy has 40 feet of material to make the perimeter of a rectangular sandbox for her little brother. (H.FF.15) VTX

- What rectangle with whole-number side lengths would give the sandbox with the greatest area?
- What rectangle with whole-number side lengths would give the sandbox with the least area?

8. Find the area of each parallelogram below.

Show formula work!  
(H FF.4) CODE: Y8K



9. The length of a rectangle is 8 centimeters. The width is 6 centimeters. (G DD.12) MHV

a. What is the area?


b. What is the perimeter?

10. The area of a rectangle is 45 square inches. (H FF.15) CODE: VTX  
One dimension is 5 inches. What is the perimeter?



(H B0.3) CODE: BCM  
(H R.11) CODE: 672

1. a. A Student Council wants to throw a party for students. They decide to have a breakfast catered and they compare bids of two companies. The Catering Crew charges \$8 per student. Urbandale Catering Company charges a set fee of \$160 plus \$6 per student. Make tables that show costs for each company in cases where 20, 40, 60, 80, 100, and 120 students would attend. (see next page)

no work  
here 

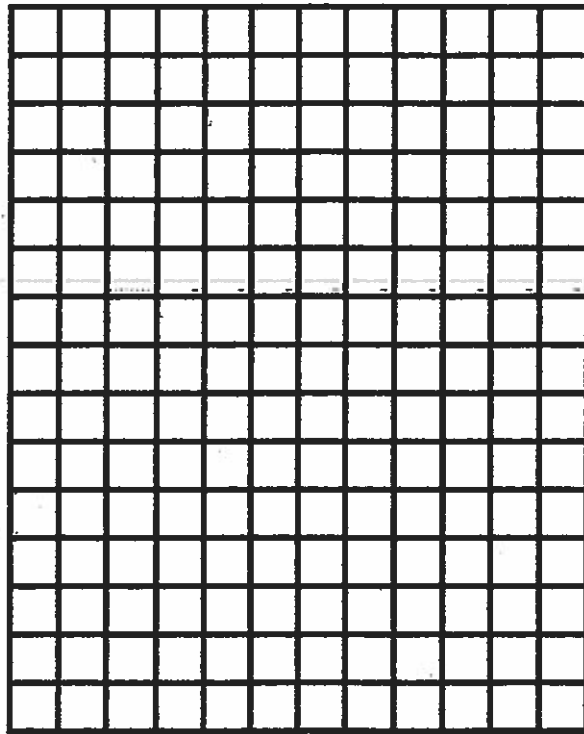
- b. Plot the (number of students, catering costs) on a graph. Use different colors or plotting symbols for points to show the two catering companies. (see next page)

no  
work  
here 

↓ show work for c-f below!

- c. Write equations relating total cost and number of students for each catering company.
- d. Why, if at all, does it make sense to connect the dots on your plots of part (c)?
- e. Is there any number of students for which both companies would charge the same rental fee?
- f. If 60 students signed up to come to the breakfast, which company should the Student Council select? What if 100 students signed up for the breakfast?

1.



(H Z.14) CODE: Y V X

2. In parts (a)–(e), use symbols to express the rule as the equation. Use single letters to stand for the variables. Identify what each letter represents.
  - a. The perimeter of a rectangle is twice its length plus twice its width.
  - b. The area of a triangle is one-half its base multiplied by its height.
  - c. Three big marshmallows are needed to make each s'more.
  - d. The number of quarters in an amount of money expressed in dollars is four times the number of dollars.

NOTE: Do NOT use a calculator for this unit!

(H G.3) CODE: SJ6

Decimal Ops (10)

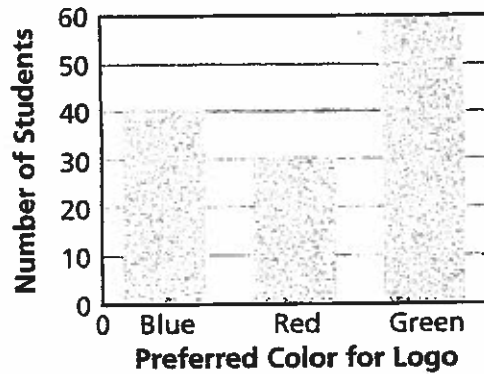
First estimate. Then find each sum or difference. Show your strategy!

1.  $0.6 + 5.8$

2.  $2.1 + 3.4$

3.  $3.4 - 0.972$

4. The student council at Metropolis Middle School conducted a survey to see whether students would prefer blue, red, or green as the new color for the school logo. The results of the survey are shown in the bar graph below. (H S.14) CODE: 49B

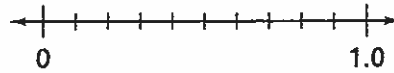
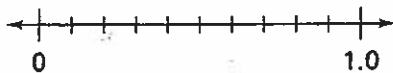


- What is the total number of students who were surveyed?
- What percent of students surveyed preferred blue?
- What percent of students surveyed preferred red?
- What percent of students surveyed preferred green?
- If 970 students attend Metropolis Middle School, what percent of the students were surveyed?

Order each set of decimals on a number line. (H F.8) CODE: AXN

5. 0.2, 0.6, 0.5

6. 0.26, 0.3, 0.5, 0.59, 0.7



(H. H.2) CODE: 2WT

Find each product.

show your strategy!

Decimal Ops (11)

7.  $5.342$

$\times 13$

8.  $0.19$

$\times 0.05$

9.  $6.4$

$\times 0.09$

Find each quotient.

Show your strategy! (H H.7) CODE: BFR

10.  $0.4 \overline{)1.08}$

11.  $0.68 \div 0.2$

12.  $0.02 \overline{)0.06}$

13.  $9 \overline{)21.6}$

14.  $15 \overline{)123}$

15.  $108 \div 5$

16. For each of the following, decide if the quotient is less than 1 or greater than 1.

a.  $9.22 \div 2.8$

b.  $0.9 \div 0.3$

c.  $12.6 \div 11.8$

d.  $5.6 \div 9.9$

(H S.10) CODE: 8N4  
(H S.14) CODE: 49B

17. A restaurant offers a 13% discount on chicken wings on Mondays. If Travis eats \$7.95 worth of chicken wings on Friday, how much would those wings cost on Monday?
18. Last year, the Widget Corporation had \$650,000 in sales. This year, sales are down 4%. How much did the Widget Corporation sell this year?
19. A store is selling a sweater on sale for \$17.90. The regular price is \$22.95. What percent of the regular price is the sale price?

Write a number sentence you could use for each situation. (H U.4) CODE: 3D8

20. A pen costs \$0.59. How much would a dozen pens cost?
21. A mint costs \$0.02. How much would a roll of 10 mints cost?
22. An orange costs \$0.09. How much would 2 dozen oranges cost?

Fill in the  $\square$ .

Use  $<$ ,  $=$ , or  $>$  to complete each statement. (G I.17) CODE: 7NN

23.  $2.8 \times 10^{\square} = 26 \cdot 100$       24.  $38.6 \cdot 10^{\square} = 2 \cdot 38.6 \cdot 5$
25.  $3.1 \times 10^{\square} = (0.5 \cdot 0.2)3.1$       26.  $8.3 \cdot 10 \cdot 1^{\square} = 8.3 \times 100$

Solve. (H S.10) CODE: 8N4

27. A bicycle goes on sale at 75% of its original price of \$160. What is its sale price?

28. Use the number sentence  $123 \times 4 = 492$  to help you solve the following: (G I.14) GFA
- a.  $12.3 \times 4$       b.  $1.23 \times 4$       c.  $0.123 \times 4$
- d.  $0.123 \times 40$       e.  $0.123 \times 400$       f.  $0.123 \times 4000$

1. Glenda rolled two six-sided number cubes nine times and computed the sum of the numbers rolled each time.
  - a. If the mean sum of Glenda's rolls was 6, what was the total of the nine sums Glenda rolled?
  - b. Suppose Glenda's rolls were 12, 7, 3, 10, 9, 2, 11, 7, and 8.
    - i. What is the median of Glenda's rolls?
    - ii. What is the mean of Glenda's rolls?
    - iii. What is the mode of Glenda's rolls?
    - iv. Which do you think is the best indicator of a typical roll Glenda made, the median, mean, or mode? Explain your reasoning.

2. Mr. Watkins arranged the quiz scores of his afternoon math class from least to greatest: 5, 5, 6, 6, 6, 7, 7, 7, 7, 8, 8, 8, 8, 8, 8, 9, 9, 9, 10, 10
  - a. How many students are in Mr. Watkins's afternoon math class?
  - b. How do the quiz scores vary?
  - c. What is the mode of the scores?
  - d. What is the median of the scores?

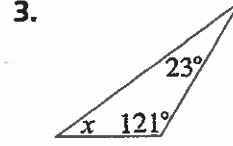
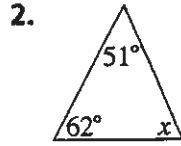
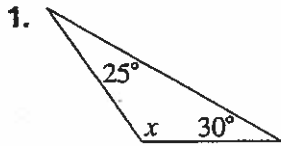
**For Exercises 3 and 4, use this information.**

**Mr. Johnson's class of 20 students collects 180 cans of food for the food drive.**

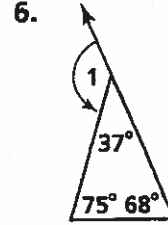
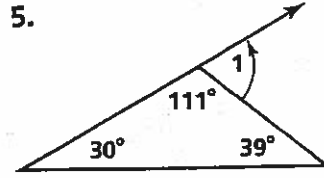
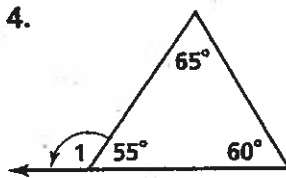
**Ms. Smith's class of 25 students collects 200 cans of food.**

3. Which class has a greater mean number of cans of food?
  - A. Mr. Johnson's class
  - B. Ms. Smith's class
  - C. The means are equal.
  - D. There isn't enough information to tell.
4. Which class has a greater median number of cans of food?
  - F. Mr. Johnson's class
  - G. Ms. Smith's class
  - H. The means are equal.
  - J. There isn't enough information to tell.

Find the measure of each angle labeled  $x$ . (H CC.9) CODE: TFG



Find the measure of angle 1 in each figure.



Use the diagram below to identify all the polygons for each name. (H CC.7) CODE: BCY

7. quadrilateral

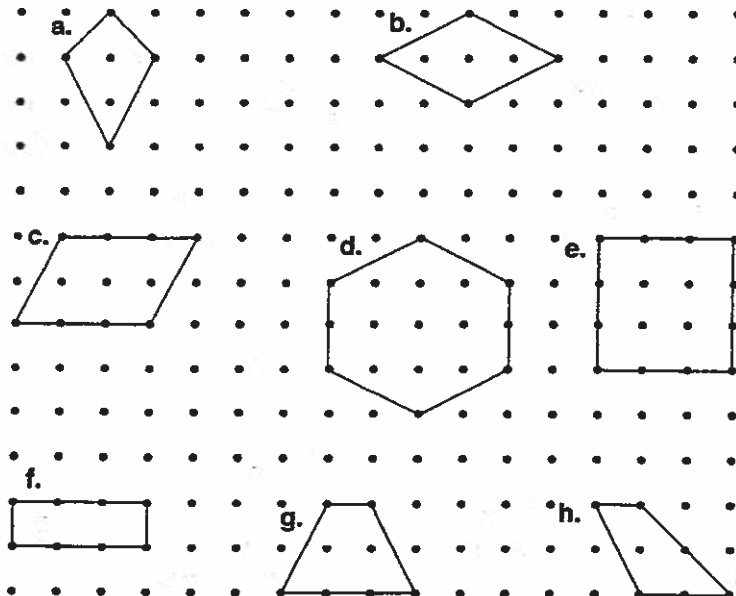
8. parallelogram

9. rhombus

10. rectangle

11. square

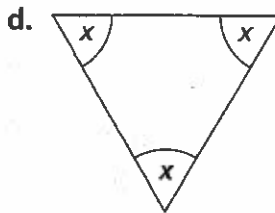
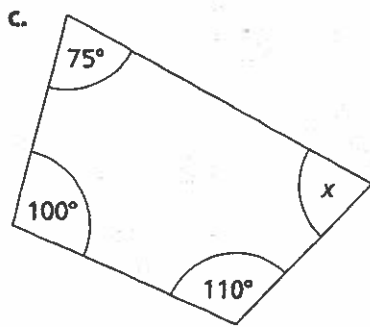
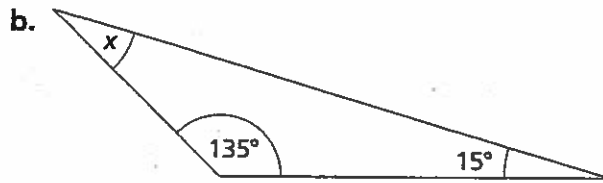
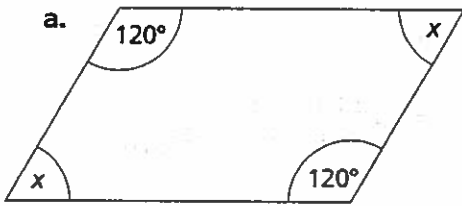
12. trapezoid



(H CC.10) CODE: A5B

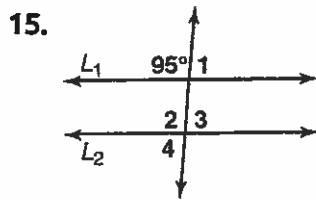
13. An isosceles triangle has two  $50^\circ$  angles. What is the measure of the third angle? Explain how you found your answer.

14. For each of the shapes below, find the unknown angle measure without using your angle ruler. (H CC.11) CODE: L9E

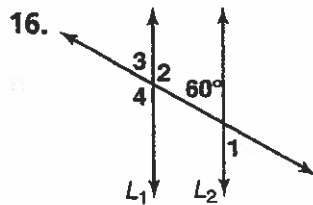


In each diagram below, lines  $L_1$  and  $L_2$  are parallel lines cut by a transversal.

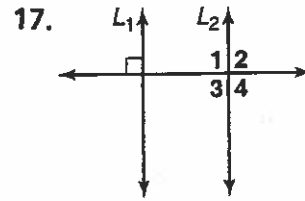
Find the measure of each numbered angle. (I W.20) CODE: CG9



$m\angle 1 =$  \_\_\_\_\_  
 $m\angle 2 =$  \_\_\_\_\_  
 $m\angle 3 =$  \_\_\_\_\_  
 $m\angle 4 =$  \_\_\_\_\_



$m\angle 1 =$  \_\_\_\_\_  
 $m\angle 2 =$  \_\_\_\_\_  
 $m\angle 3 =$  \_\_\_\_\_  
 $m\angle 4 =$  \_\_\_\_\_



$m\angle 1 =$  \_\_\_\_\_  
 $m\angle 2 =$  \_\_\_\_\_  
 $m\angle 3 =$  \_\_\_\_\_  
 $m\angle 4 =$  \_\_\_\_\_