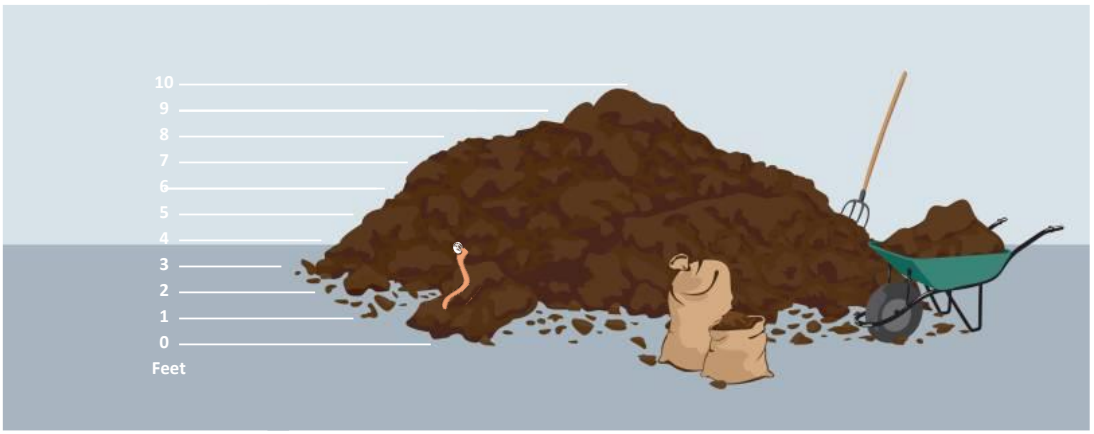
MATH OLYMPICS

Name (Class): _____

5th Grade, Week I

(Parents: Reading the problems to your child is ALWAYS okay. So is helping!)

★★★★ **I.1.** A worm is at the bottom of a 10-foot hill. He crawls up the hill 4½ feet a day. At night, when he rests, he slides down 2½ feet. How long does it take the worm to crawl up the hill? (*Hint: draw a picture*)



Answer: _____ days

★★★☆ **I.2.** Jennifer was shopping, and using a calculator to find the price of a can of soda. She got [redacted]0.6, but didn't know exactly how much money that was. How much money would the can of soda cost? Circle the best answer below.

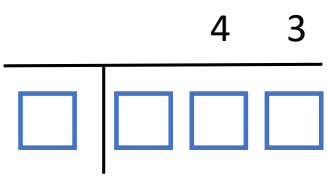
a) $6 b) $0.06 c) $0.60 d) 60¢ e) 0.60¢ f) both (c) and (d)

Answer: _____

★☆☆☆ **I.3.** If the 9th of the month is a Tuesday, what day of the week is the 25th?

Answer: _____

★★★☆ **I.4.** Put one digit from {1, 0, 3,7} in each box to get the correct long division problem.



MATH OLYMPICS

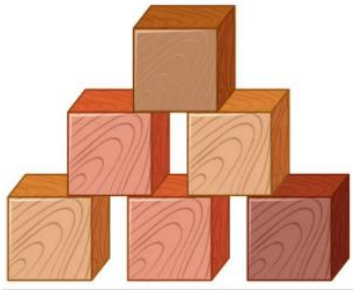
Name (Class): _____

★☆☆☆ **I.5.** Let's do some geometry with a calculator. Circle two sides you could use to draw a set of parallel lines.

★★☆☆ **I.6.** Use a ruler and measure the pencil below to the nearest millimeter.

Answer: _____ mm

★★★★ **I.7.** Mrs. Jones had some white paint and some green paint, and a bunch of wooden cubes. Her class decided to paint the cubes by painting each face either solid white or solid green. Juan painted his cube with all 6 faces white. Julie painted her cube with all 6 faces solid green. Hector painted 4 faces white and 2 faces green. How many cubes could be painted in the fashion, so that each cube is different from the others? Two cubes are alike if one can be turned so that it exactly matches, color for color on each side, the other cube.



Answer: _____ cubes can be painted so they are different.

★☆☆☆ **I.8.** Letia bought a milk shake at Nona's, and gave the clerk a $10 bill. She got $9.61 in change. Is this reasonable? Why, why not?

Answer: _____

_____

★★★☆ **I.9.** The sum of my two digits is 13. I am not divisible by 2. List all the possible numbers I could be.

Answer: _____

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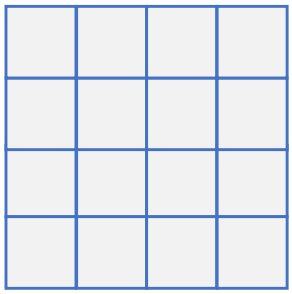
5th Grade, Week II

★★★☆ **II.1.** Use each of these digits one time in the number sentence below: 2, 4, 6, and 8. Fill in the blanks to produce the answer "14". Remember to compute inside the parentheses first.

(_____ ÷ _____) + (_____ x _____) = 14

★★☆☆ **II.2.** How many squares can be found in the figure to the right?



Answer: _____ squares

★☆☆☆ **II.3.** Tamisha did a problem two different ways on her calculator. She got two different answers. Which of the two answers below represents the largest number? Circle it.

★★☆☆ **II.4.** The girl scouts were going on a field trip to the zoo. There are 25 people going. They rented vans and each van has only 7 seat belts. How many vans do they need?

Answer: _____ vans

★☆☆☆ **II.5.** Write the standard numeral:

9000 + 700 + 8 + 0.6 = _____

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Name (Class): _____

★★★★ **II.6.** What do you know about metrics? Circle the answers below that would make sense.

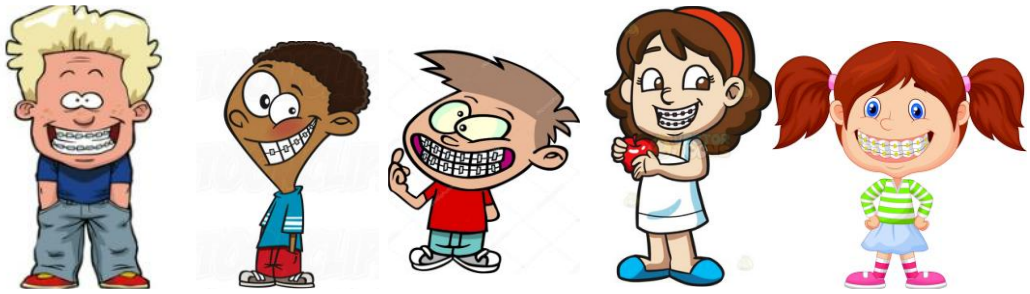
a.	The weight of a pineapple:	1 kg	1 g	1 mg
b.	The capacity of a can of soda:	35 mL	3.5 L	350 mL
c.	The temperature on a summer day:	30 ^{o}C	3 ^{o}C	-3 ^{o}C
d.	The distance from Hingham to New York:	193 cm	193km	193 mm

★★★☆ **II.7.** A class of 25 students has 10 boys. Three boys have braces, and 4 girls have braces.

a. What is the ratio of boys with braces with boys in the class? _____

b. What is the ratio of girls with braces to girls in class? _____

c. Which of the two above ratios is larger? _____



★★★★ **II.8.** The price and the sales tax are given. Compute the total cost. Tell how much change you would receive from $5.00.

Answer: _____ total cost

Answer: _____ change

MATH OLYMPICS

Name (Class): _____

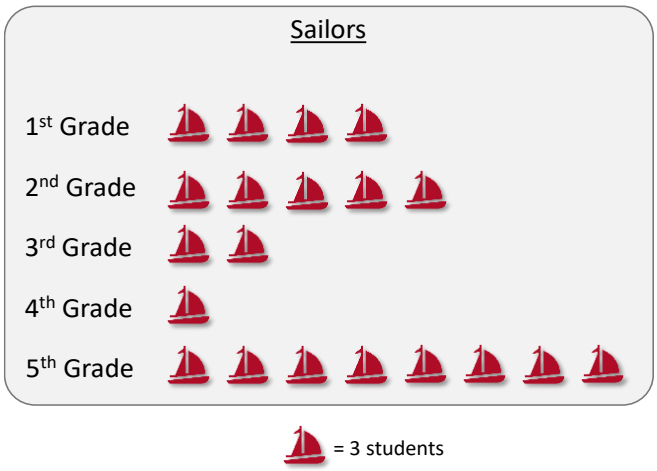
5th Grade, Week III

★★☆☆ **III.1.** Toni works in the school store. She sold 36 notebooks and 42 book covers. The notebooks cost $2.38 each, and the book covers cost $1.75 each. What is the total cost of Toni's sales?

Answer: _____

★☆☆☆ **III.2.** A lot of students like to sail. Use the chart below to compare the primary grade sailors (grades 1-3) with the intermediate grade sailors. What is the difference in the number of sailors between the two groups?

Answer: _____



★★☆☆ **III.3.** You have $100. You spend 1/4 of your money to buy a new pair of jeans. You want to save 1/5 of what you have left. How much will you save?

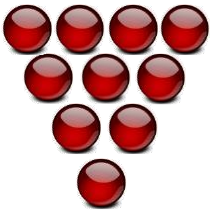
Answer: _____

★★★☆ **III.4.** Use these digits only once: 1,2,4, and 8. Write a number sentence and use any of the operations (+, -, x, +) as many times as you'd like. You must get 0 as an answer. Use parentheses if you'd like.

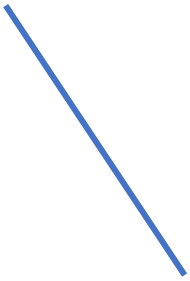
Answer: _____

Name (Class): _____

★★☆☆ **III.5.** Draw all the *lines of symmetry* of the figures below.



★☆☆☆ **III.6.** Below is a line of symmetry. Draw a figure around it for which the line is a line of symmetry.



★★★☆ **III.7.** Students arrived for school in groups. Bill was the first to arrive. Consider him the "first group". Each group that arrived after Bill had two more people than the group that arrived before it. How many people were in school after 20 groups arrived?

Answer: _____

★☆☆☆ **III.8.** How much does the can of blue paint weigh, by itself?

Answer: _____

MATH OLYMPICS

Name (Class): _____

5th Grade, Week IV

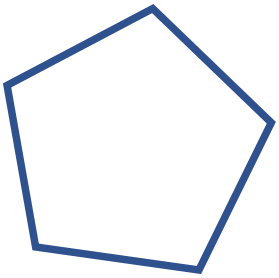
★★☆☆ **IV.1.** One, three and six are *triangular numbers*. List all the other triangular numbers to 36.

Answer: _____

★☆☆☆ **IV.2.** Jennifer earns $5.25 an hour. Starting Monday, she will get a raise to $5.85 an hour. She works 40 hours each week. How much more will she make next week than she made last week?

Answer: _____

★★☆☆ **IV.3.** A diagonal joins two vertices of a polygon. Draw all the diagonals in the polygon to the right.



★★☆☆ **IV.4.** Elodie plans to save 25% of the money she makes over the summer washing cars.

a. Shade in about 25% of the bill to the right to show much she will save from every dollar she earns.

b. How much will she save for each car she washes for $5?

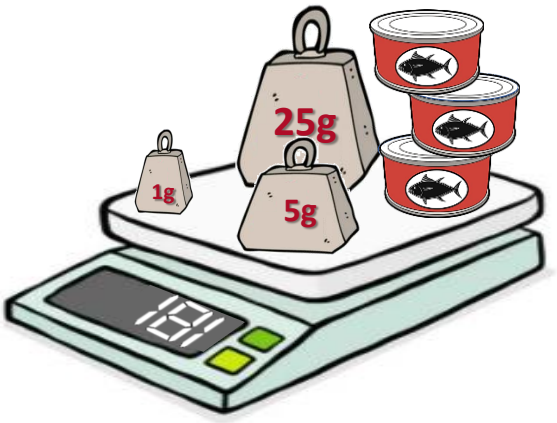
Answer: _____

★★☆☆ **IV.5.** The Phillips family wants to fence their rectangular backyard. They know the yard as a perimeter of 24 meters, and an area of 32 square meters. What is the yard's length and width?

Answers: The length is _____ meters, and the width is _____ meters.

Name (Class): _____

★★★☆ **IV.6.** *Y* stands for the weight of 1 can of tuna fish on the scale. Find *Y*.

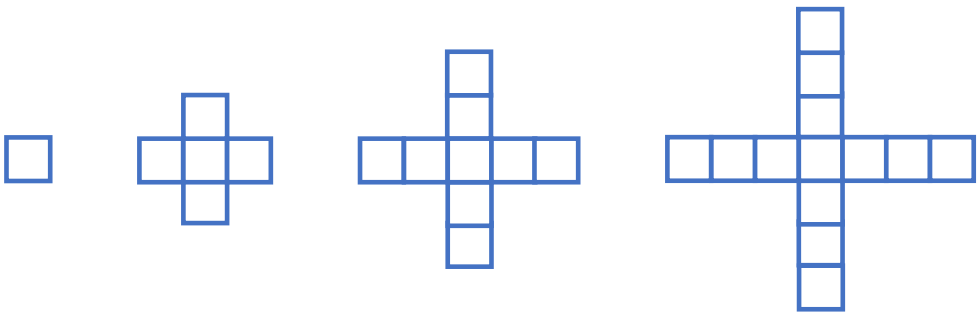


Answer: *Y* = _____

★★★☆ **IV.7.** Write the problems and answers below each calculator:

_____= _____ _____= _____ _____= ____

★★☆☆ **IV.8.** Look at the pattern below. How many squares would be in the 10th shape in the pattern?



Answer: _____ squares

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Name (Class): _____

5th Grade, Week V

★★☆☆ **V.1.** Big Al has a set of non-metric wrenches (that is, in *fraction of inches* rather than *mm*) that have these numbers on the end:

$$\frac{7}{16}, \quad \frac{1}{4}, \quad \frac{9}{16}, \quad \frac{3}{8}, \quad \frac{5}{16}, \quad \frac{1}{2}$$

Which of his wrenches fits the largest nut? _____

Which fits the smallest nut? _____

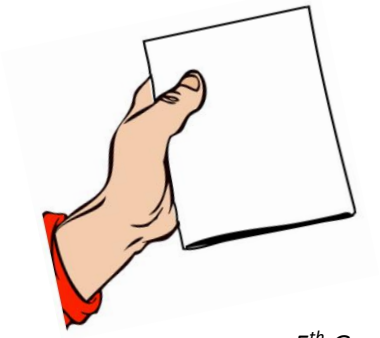
★★★☆ **V.2.** Jennifer bought earbuds for her mother. They were on sale for 1/3 off. The regular price was $18. How much will she pay for the headphones, including sales tax of 6%?

Answer: _____

★☆☆☆ **V.3.** Melissa and Sarah arranged the music hall for a concert. They made 42 rows with 35 chairs in each rows, and 12 rows with 25 chairs per row. How many chairs did they use in all?

Answer: _____ chairs

★★☆☆ **V.4.** The "square corners" on a sheet of writing paper are 90 degree angles. You can use these corners to estimate the measure of other angles. About what is the angle of the piece of pizza being removed in the picture?



Answer: _____ degrees

MATH OLYMPICS

Name (Class): _____

★★☆☆ **V.5.** In April, 9.45 inches of rain fell in Hingham. During May, 9.6 inches of rainfall fell. Which had the most rainfall, and what was the total for the two months.

Answer: _____ had the most rain, the total was _____ inches

★☆☆☆ **V.6.** Complete the addition. Convert your answer to the smallest units. *(i.e., change feet into inches and yards into feet, if possible)*

	2 yd.	**2ft.**	**3in**
+	**1 yd.**	**2ft.**	**11in**
	yd.	**ft.**	**in**

★★★☆ **V.7.** Alex's Dad made him a birthday cake, but forgot to buy the candles. He could only find a few. But Alex is smart in math, so his Dad said "the ratio of the candles to years is 3 to 5". That gave him he right number.

How old was Alex? _____

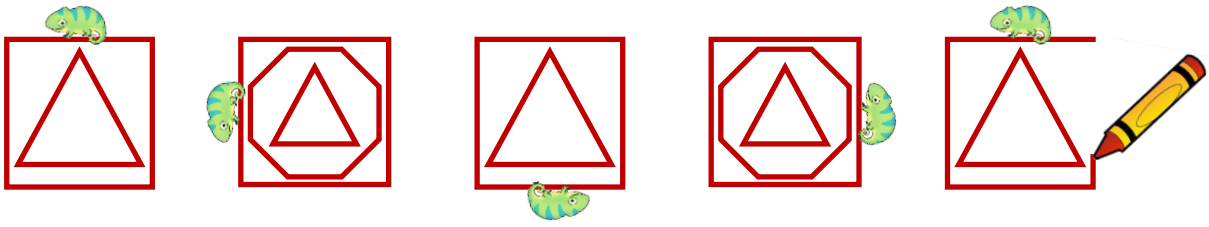
★★★☆ **V.8.** Kenya, Matt, Tia and Justin live on the same street. Their houses are gray, green, blue, and white, but not necessarily in that order. Justin lives next door to the grey house. Matt and Justin live across the street from the green house. Tia's house is blue. Circle the one who lives in the white house.

a. Kenya b. Matt c. Tia d. Justin

★★★☆ **V.9.** Answer the questions after studying the pattern.

- Circle the figure above that would be the same as figure (15) in the pattern.
- List the numbers of the first 5 figures that would be just like the one in (1):

  _____
- What is the number of the figures below, that is just like the 100th figure in the series? _____



(1) (2) (3) (4) (5)

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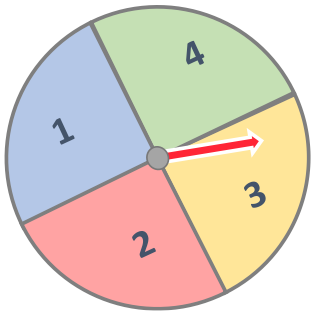
5th Grade, Week VI

★★☆☆ **VI.1.** The Adams family uses a spinner each night to see who clears the table. Carla is assigned to number 4.



What is Carla's chance of having to clear the table on any given night? _____

What is Carla's chance that she won't have to clear the table on any given night? _____

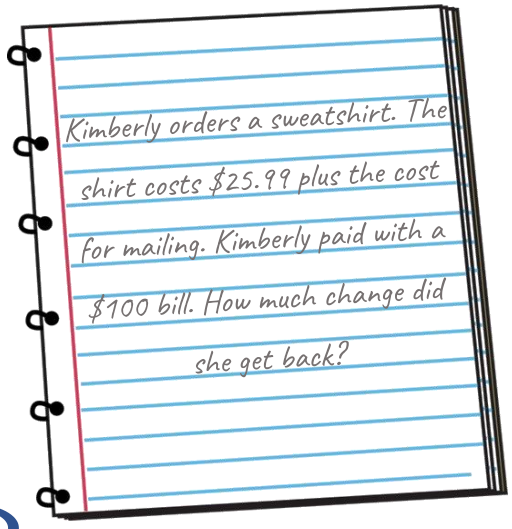
★★★★ **VI.2.** Bonita has 6 coins. All of them are pennies or dimes. What are all the possible amounts of money she might have?

Answer: She might have ____¢, ____¢, ____¢, ____¢, ____¢, ____¢, or ____¢

★★☆☆ **VI.3.** Compute this mathematical expression:

$$8 \times \left(7.5 + 2\frac{1}{2}\right)$$ Answer: _____

★★☆☆ **VI.4.** Solve this problem if you have enough information. If there is not enough information, tell what you would need to know below.



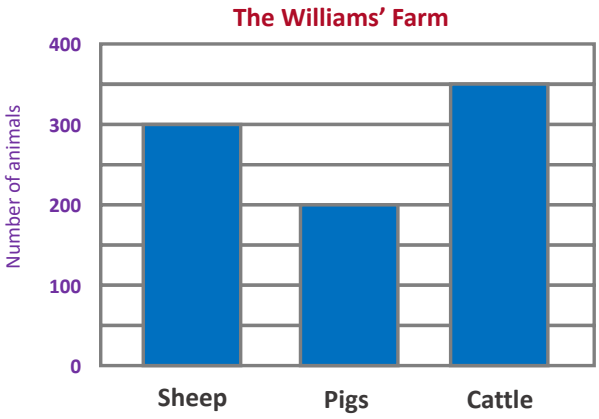
Answer: _____

_____

★☆☆☆ **VI.5.** Use a ruler to draw a segment 52mm long, in the space below. Make sure to use a sharp pencil!

Name (Class): _____

★★★☆ **VI.6.** Use the following graph to answer these questions.

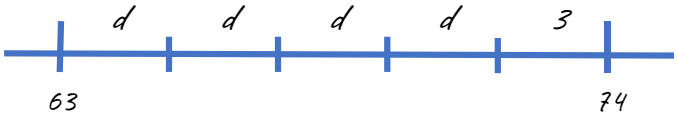


a. What is the total number of animals on the Williams' farm? _____

b. What is the difference in the number of cattle and the number of pigs? _____

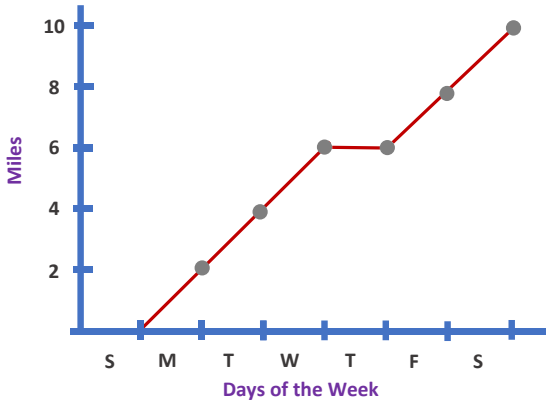
c. How many more pigs do they need to equal the total number of cattle and sheep? _____

★★★☆ **VI.7.** Maria's bike odometer read 63 miles. She rode her bike to school and back 4 days last week. On Saturday, she rode to the park and back, a total distance of 3 miles. At the end of those five trips, her odometer showed 74 miles. Find the distance *d* from her house to school and back. You can find d by using your number sense and the diagram below.



★★☆☆ **VI.8.** In each evening, Maria tallied the distance she biked since the beginning of the week. Which day of the week did she <u>not</u> ride her bike to school?

Answer: _____



★★☆☆ **VI.9.** There are 34 classes in a school and each class could have between 23 and 30 children.

What is the school's highest possible student population? _____

What is the school's lowest possible student population? _____

MATH OLYMPICS

Name (Class): _____

5th Grade, Week VII

★★☆☆ **VII.1.** What is the sum of these mixed numbers?

$$5\frac{2}{3},\quad 3\frac{3}{4},\quad 13\frac{1}{6},\quad 8\frac{1}{2}$$

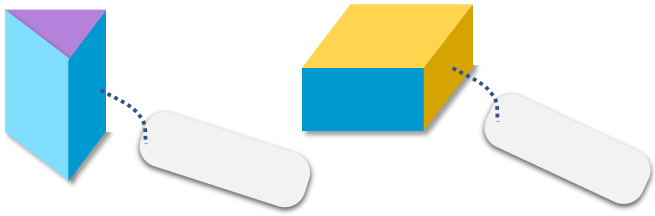
Answer: _____

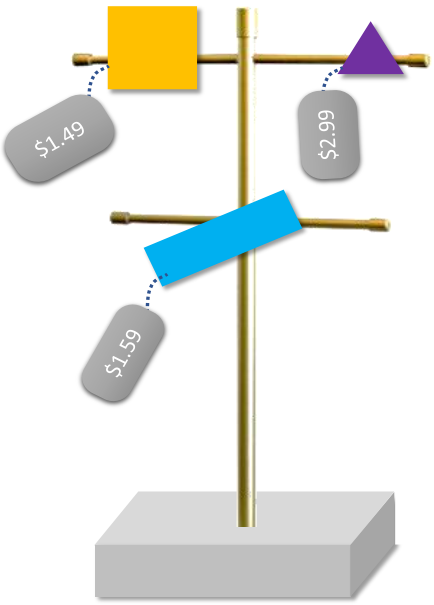
★★★☆ **VII.2.** Artesia found a sale on skates. She got 1/5 off the regular price of $34.50. What was the sale price of her skates?

Answer: $ _____

★★★☆ **VII.3.** John needed two more blocks to complete his project. How much will each shape cost? Compute the cost of each shape using the key for each face – write the cost on each tag.

(the color of each face is the same as its opposite face)





★★★★ **VII.4.** Put >, <, or = between each pair of numbers

a. 34.63 _____ $34\frac{1}{2}$

b. 12.443 _____ 1.2443

c. $3\frac{2}{5}$ _____ $1\frac{12}{5}$

d. 0.09 _____ 0.9

MATH OLYMPICS

Name (Class): _____

★★☆☆ **VII.5.** Mike and Lynn are running the Boston marathon. They started at 8:15 am. They both crossed the finish line at 1:26pm. How long did it take them to finish?

Answer: _____ hours and _____ minutes.

★★★☆ **VII.6.** How many $1 bills in $1,000,000? _____

How many $100 bills in $1,000,000? _____

How many $1,000 bills are there in $1,000,000?

_____

★★★★ **VII.7.** Find the numbers that each letter stands for :

EFGH

x 4

E = _____ F = _____

HGFE

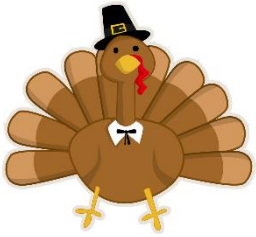
G = _____ H = _____

★☆☆☆ **VII.8.** Jim was putting carpet in his son's tree house. He needed to find the area of the floor before going to Lowe's. But he was having trouble with the multiplication. The measurements were 4.2 meters by 6.3 meters. Find the area for him.

Answer: _____ meter^2

★★☆☆ **VII.9.** Rewrite this riddle so it's easily understood.

The middle 3/5 of **SHOWS.**
The first 1/3 of **DOODLE**.
The first 3/5 of **YOURS.**
The first ½ of **KEEPSAKE.**
The middle 1/5 of **TRAPS**.
The first 6/6 of **TURKEY**.
The middle 1/2 of **PINS**.
The first 8/11 of **SUSPENSEFUL**.



Answer: The riddle is _____

A good answer to the riddle might be: _____

MATH OLYMPICS

Name (Class): _____

5th Grade, Week VIII

★★★☆ **VIII.1.** Write "true", "sometimes", or "false".

a. Perpendicular lines intersect _____
b. Two sides of a triangle are parallel _____
c. Two lines that are parallel to the same line are parallel to each other _____

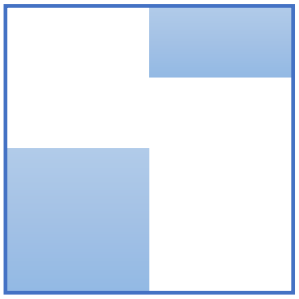
★★☆☆ **VIII.2.** Solve:

9 ÷ (1 + 2) + 9 ÷ 3 = _____

★☆☆☆ **VIII.3.** Lisa and Sandy were comparing sticks. Lisa's stick was 2/3 of a yard long. Sandy's stick was $1\frac{10}{12}$ of a foot long. Whose stick was the longest, and by how much?

Answer: _____ was longer, by _____.

★★★★ **VIII.4.** What fraction of the large square is shaded?



Answer: _____ is shaded

★★☆☆ **VIII.5.** Adrienne left home at 8 am. She arrived in Los Angeles at 1:28pm. Her friend Erica left home at 10 am and arrived at 2:45pm. Assume they are in the same time zone the whole trip and both trips take place during the same day. Altogether, how many hours did Adrienne and Erica spent traveling?

Answer: _____ hours, _____ minutes.

MATH OLYMPICS

Name (Class): _____

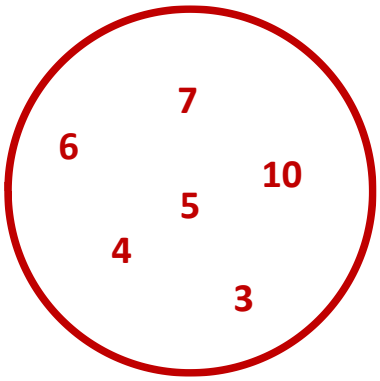
★★☆☆

VIII.6. Mike had eighteen jellybeans in a jar. 12 of them were green, 1 was blue, 1 was black, 1 was white, 1 was pink, and 2 were orange. If he stuck his hand into the jar without looking, what is the probability of pulling out and orange jellybean?

Write your answer as a fraction: _____

★★★★

VIII.7. Write a number sentence. Use every digit in the circle only once. Insert math symbols (+, -, x, ÷) and end with the number three. Use parentheses if necessary.



Answer: _____ = 3

★★☆☆

VIII.8. Joe and Christine each bought a six pack of colas. Joe gave 2/3 of his away to friends, and Christine gave away 1/2 as many as Joe. How many more colas did Christine have, than joe?

Answer: She had _____ more.

★☆☆☆

VIII.9. Lo Ann's softball team had 16 players. One day it started raining at practice, and all but 5 players squeezed into the refreshment stand, out of the rain. How many were left to get wet?

Answer: _____ were left outside who got wet.

MATH OLYMPICS

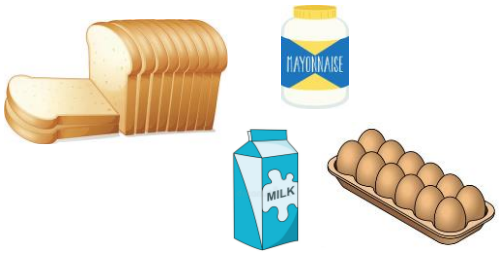
Name (Class): _____

5th Grade, Week IX

★★☆☆ **IX.1.** Sandra has eight coins which total $0.87. What coins does she have? (hint: make a chart or a list)

Answer: _____

★★☆☆ **IX.2.** Use mental math, rounding and guestimating. Loony has $30 to buy some groceries for his mom. Milk costs $5.39, bread costs $4.99, 12 eggs cost $7.79, and mayonnaise cost $8.49. If he buys one of each item, should he have enough money to pay? _____ (yes or no)



★★☆☆ **IX.3.** Jack wants to buy an equal number of green, blue, and white ornaments for his holiday tree. Green ornaments come in packages of 3; blue ornaments come in packages of 6; the white ones come in packages of 4. What is the least number of packages of each color he must buy?

Answers: _____ packages of green

_____ packages of blue

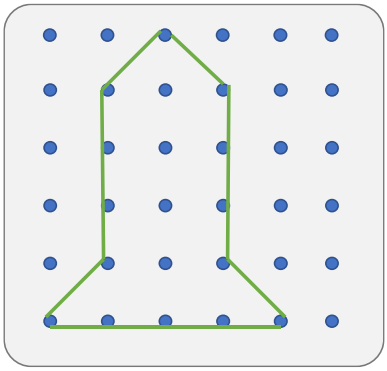
_____ packages of white

★★☆☆ **IX.4.** Mikey made a space ship on his geoboard.

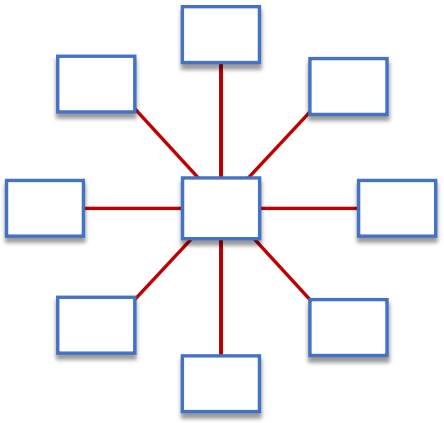
Draw any lines of symmetry on the space ship.

Find the area of the space ship by counting whole and partial square units.

The area is _____ square units.

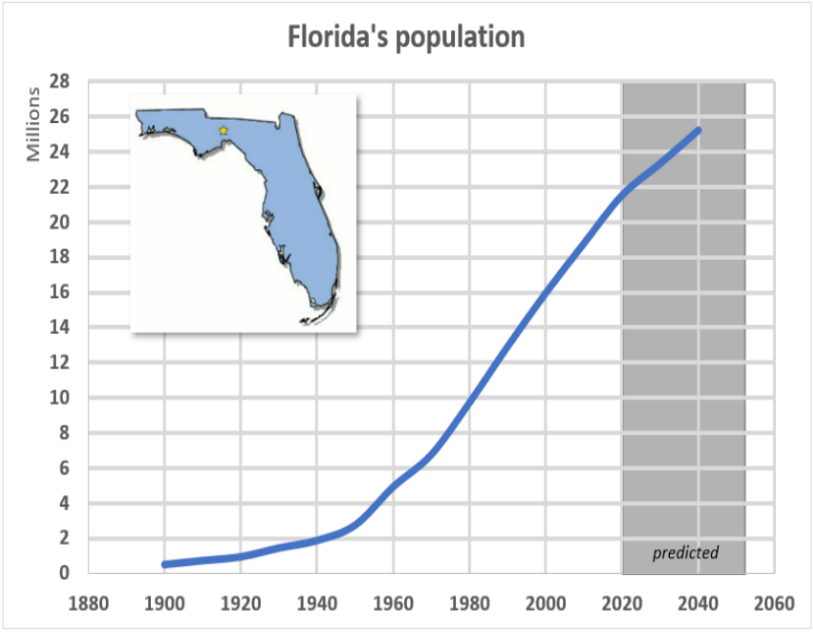


Name (Class): _____



★★★☆ **IX.5.** Use each digit from 1 thru 9 to make each line sum to 15. Use each digit only once.

★★★☆ **IX.6.** The state of Florida has had an impressive growth in population since the 1950's. Use the graph to answer the questions about Florida' growing population



(a) What is the increase in population from 1950 to 2000?

_____

(b) What was the approximate population in 1980?

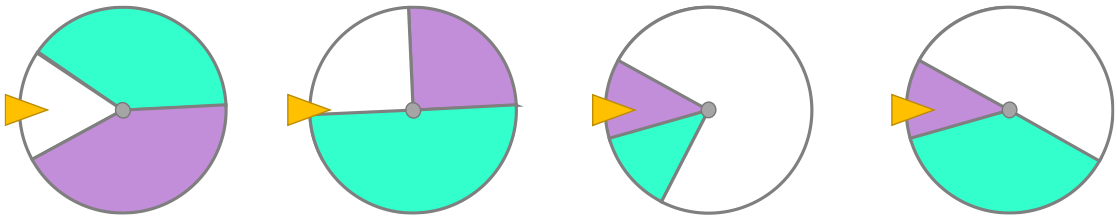
_____

(c) At the current rate of increase, what will the population be in 2040? _____

★★★☆ **IX.7.** It's time for DP's *wheel unfortunate*! Look at these spinners to answer and circle the spinner that gives the white *("own a cat!")* the most chance.

What is the chance of landing on white, on that spinner? Ouch! _____

What is the chance of not landing on white, on that spinner? Phew! _____



MATH OLYMPICS

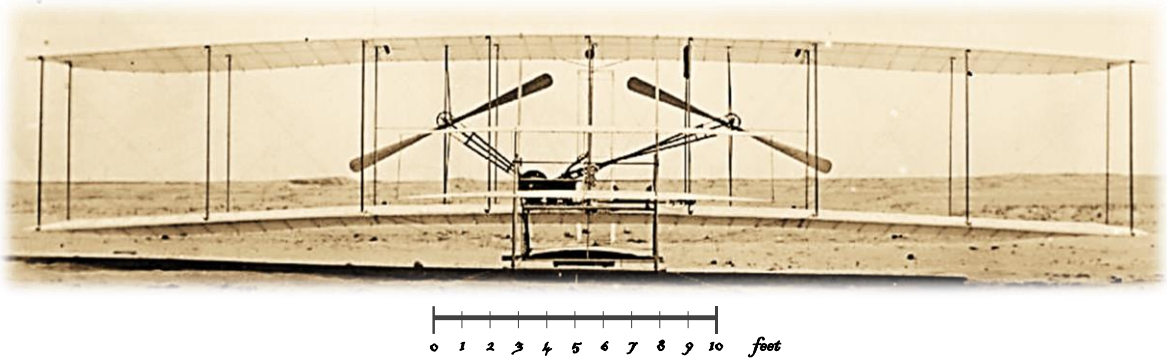
Name (Class): _____

5th Grade, Week X

★★☆☆ **X.1.** The wright brothers each had two flights: 120 ft and 585 ft, and 340ft and 852 ft.

What was the average distance flown that day? _____

At that rate, how many flight would it have taken to fly a mile? _____



★☆☆☆ **X.2.** Use the scale under the plane to find its wingspan, tip to tip. Answer: _____ ft

★★☆☆ **X.3.** The regular season for professional baseball is 162 games. A player was at bat 3 times in each game, and the played in 2/3 of the games.

a. How many times was the player at bat during the season? _____
b. The player hit 0.250, which means he got a hit 25% of the time, or once in every four at bats. How many hits did he get during the year? _____

★★☆☆ **X.4.** John needs to build a fence around his yard, which is 96 ft wide and 120 ft deep.

How much fence must he buy to enclose all four sides? Answer: _____

If the fence costs $12.87 for an 8 ft length, how much will the entire fence cost before the tax is added? Answer: _____

★☆☆☆ **X.5.** A bag has 6 marbles in it. Each marble is either red, blue, or green. What is the least number of marbles that you must pull out of the bag to be sure you have two marbles the same color?

Answer: _____

MATH OLYMPICS

Name (Class): _____

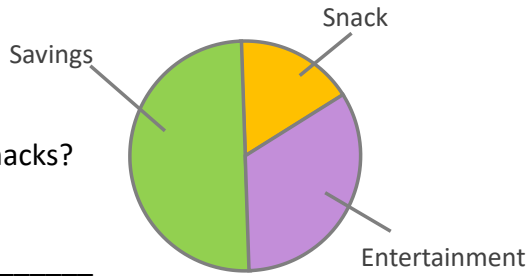
★☆☆☆ **X.6.** The store where Herminie and Sasha shop is having a sale. Each of the girls want to buy 2 pairs of shorts and three tops. If shorts and tops are on sale for $11.50 each, what is the best estimate of how much each girl will spend?

a. $40 b. $50 c. $60 d. $120

★★☆☆ **X.7.** What whole number does N stand for if the number sentence below is true?

(N + 5) + (3 x 2) = 18 Answer: _____

★★★☆ **X.8.** Danny earns $5 a week. Use the graph to answer the questions below.



How much money does Danny spend on snacks? _____

How much money does Danny save? _____

How much money does Danny spend on entertainment? _____

★★★☆ **X.9.** Foster School has 3 boys for every 4 girls in the fifth grade. There are 140 students in the fifth grade.

How many are boys? _____. How many are girls? _____

 **X.10.** That's it, last one! Well done for making it up to the end. Say you've done all the Math Olympics since Kindergarten. There were an average of 4.5 questions per sheet, 2 sheets a week, for 10 weeks, each year.

How many questions did you do during your stay at Foster? _____

Say it took you 3 minutes per questions, how long have you spent doing Math Olympics? Answer: _____

(*trick question…*) Was it worth it? Answer: _____