

Dear Parents,

As the summer dawns upon us, we have the time to reflect on the year that was and prepare for the year to come. One of the effects of the summer is the diminished math skills. In an attempt to overcome the obvious, we are assigning math work over the summer months to curb the deterioration of these skills. Math is a subject that is scaffolded- the topics repeat from year to year albeit with a little bit more of a challenge. We feel that these sheets will help our students as they begin the new year, with the new challenges.

The summer work is divided into 20-25 sections based on the New York State Standards of Mathematics. There are approximately three to five questions per topic. It is our expectation that all students entering 7th and 8th grade complete all the problems before the school year. Ideally, each student should do two or three topics a week. In addition to the regular worksheets, students who were in 7th grade high math and/or wish to take math 9 –integrated algebra regents in 8th grade, are strongly encouraged to complete the “7th Grade Advanced Worksheet.” Should your child struggle with any of the material, there are many websites that your child can go to, both videos and extra worksheets, for assistance. One website in particular we have found helpful is [khanacademy.org](https://www.khanacademy.org).

It is our hope and anticipation that our students reach higher levels in mathematical ability and mathematical thinking. It is our goal to have students reach their full capabilities as learners and as bnei and bnos Torah.

Please feel free to contact us over the next few weeks to discuss your child’s math placement. We are available, as well, to discuss strategies to ensure your child enters school next year well prepared.

Have a great summer and hatzlacha rabba!

Rabbi Jeremy Feder

Director of Mathematics

Name : _____

Summer 2011

Math Summer Review for Advanced Grade 7

NUMBER SENSE

Place Value

1. In science class, you measure a sample of minerals that weigh 1.03 grams. If you add 0.1 grams to the sample, what would it now weigh?

- a. 2.03g b. 1.13g c. 1.04g d. 11.03g

2. Which means the same as $5 + 0.4 + 0.03$?

- a. 54.03 b. 5.043 c. 54.3 d. 5.43

3. Convert this number from scientific notation into decimal form: 3.25×10^4 .

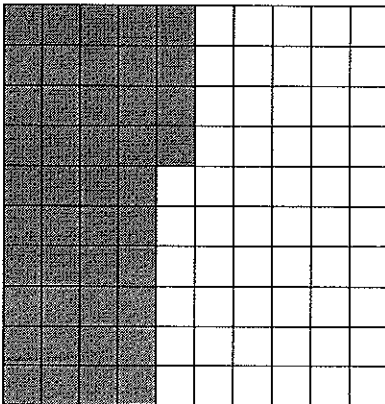
4. How much do you have to add to 5.45 to get 5.47?

5. Convert this number from decimal form to scientific notation: 5,345.

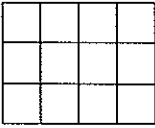
Pictorial Representations

1. Which percent represents the amount of the grid that is shaded below?

- a. 44% b. 5.4% c. 54% d. 4.4%



2. Shade $\frac{3}{4}$ of the squares in the rectangle below.



Equivalent Fractions, Decimals, Percents

1. $\frac{1}{4}$ of our math class hates broccoli. How would you write this as a percent?
2. 75% of my family loves broccoli. How would you represent this as a decimal?
3. 0.65 of all BMS eighth graders like to eat broccoli. How would you write that as a percent?
4. If more than half of the US population eats broccoli, what might be the percent of Americans that like this vegetable.
 - a. 5.1%
 - b. 45%
 - c. 0.51%
 - d. 51%

Order, Magnitude and Rounding of Numbers

1. Yolanda went to the store to buy chicken for dinner. She needed between 1.2 and 1.3 pounds for her fajita recipe. She found four packages with the following weights. Which package of chicken should she buy?
 - a. 1.19 lbs.
 - b. 1.25 lbs.
 - c. 1.03 lbs.
 - d. 1.35 lbs.
2. Four cookie recipes require different amounts of semi-sweet chocolate: $\frac{1}{2}$ cups, $\frac{2}{3}$ cups, $\frac{1}{4}$ cups, and $\frac{1}{3}$ cups. List these amounts in order from least to greatest.
3. Rafael is a fantastic Scrabble player. He plays every weekend. Last weekend he played $2\frac{1}{4}$ hours on Friday, $3\frac{1}{2}$ hours on Saturday, and $2\frac{1}{3}$ hours on Sunday. List the days in order from greatest to least amount of time he played.

4. Gertrude takes a walk every day. She walked between $\frac{3}{4}$ and $1\frac{1}{4}$ hours today. Which could be the number of hours she walked today?
- a. $\frac{7}{8}$ b. $1\frac{3}{8}$ c. $1\frac{5}{8}$ d. $\frac{5}{8}$
5. Six Flags New England has 25,562 riders on its Batman rollercoaster everyday. Round this number to the nearest hundred.
6. John went to the candy store and bought 2.347 pounds of gummy worms. Round his purchase of to the nearest tenth.

OPERATIONS

Models for Operations

1. A taxi fare is based on \$2.75 fixed charge plus \$0.20 per mile. The fare for a ride of r miles is \$5.15. Write an equation that could be used to find r .
2. Write a story problem that can be solved using the following equation.
 $12x + 8 = 68$
3. The total cost in dollars, c , to have 2 new winter tires put on a sports utility car is 2 times the cost of a tire, t , plus an additional charge of \$42.00. Which equation could be used to find the total cost?

A $c = 2 + 42t$ B $c = 2t + 42$ C $c = 2 + t + 42$ D $c = 2(t+42)$

Computations With Whole Numbers and Decimals

1. Subtract 12.67 from 32.01
2. Find the quotient of 2.61 and 0.9

3. Solve the problem: $0.642 \times 100 =$
4. What is the product of 5.2 and 7.3?

Computations With Fractions

1. Solve: $5\frac{1}{3} + 2\frac{5}{6}$
2. Solve: $2\frac{3}{8} \cdot 1\frac{1}{4}$
3. Solve: $15\frac{1}{4} + 5\frac{3}{5}$
4. Solve: $12\frac{7}{8} - 3\frac{1}{4}$

Solve Word Problems

1. In March it rained $2\frac{1}{2}$ inches and in April it rained $1\frac{3}{4}$ inches. What is the difference in the amount of rain in the two months?
- A 1 inch B $\frac{1}{2}$ inch C $\frac{3}{4}$ inch D $1\frac{1}{4}$ inches
2. Allan bought 3 CDs and a DVD. Each CD cost \$15.99 and the DVD cost \$21.25. Which is the total cost of these items, not including tax?
- A \$37.24 B \$53.23 C \$69.22 D \$79.74
3. Sam had English, math and science homework to do. He spent a total of $2\frac{1}{4}$ hours completing his homework. If he spent the same amount of time on each subject, how long did it take him to do his math homework?

4. Judy bought pizzas for a party. Each pizza was cut into 8 slices. If there were 22 people coming to the party, how many pizzas would she need to buy so that each person had at least one slice?

ESTIMATION AND APPROXIMATION

Numerical Estimation Strategies

1. The closest estimate of 59×17 is
- A 50×10 B 60×20 C 55×10 D 50×20
2. To estimate the product of 2487 and 193, Mary multiplied 2000 and 200. Would her estimate be more or less than the actual product?
3. What is a good estimate for 12.49×3.98 ?

Estimating Solutions to Problems

1. Alicia makes an average of \$61.50 each month for babysitting. Which is the best estimate of how much she makes in a year?
- A \$600 B \$700 C \$800 D \$650
2. Ilana ran a marathon in 5 hours and 10 minutes. A marathon is 26.2 miles. What is a good estimate for her average speed for the entire marathon in miles per hour?
3. Mrs. McDonald's class is raising money for a field trip by selling boxes of donuts. They want to raise between \$1500 and \$2000. If they sell a box of donuts for \$3.50 and they have 550 boxes, explain how you could estimate whether they will reach their goal.

RATIO, PROPORTION & PERCENT

Ratios and Proportions

1. If the ratio of oil to vinegar in the salad dressing is 2 to 3, which of these should be used?
A) 4 parts oil, 8 parts vinegar B) 1 part oil, 2 parts vinegar
C) 10 parts oil, 30 parts vinegar D) 9 parts oil, 13.5 parts vinegar
2. Paul worked 15 hours and earned \$127.50. At this rate, how long would it take for Paul to earn \$ 170.00
3. A recipe calls for 2 cups of milk for every 5 cups of flour. If you use five cups of milk, then how many cups of flour must be used?
4. 4 inches of snow has fallen in the city over the last 12 hours. If the snowfall continues at this rate, how many inches will fall in 4 days?
A) 1 inch B) 8 inches
C) 32 inches D) 24 inches
5. About $\frac{7}{10}$ of the 8th grade will be attending the school dance. If there are 287 8th graders, ABOUT how many will be at the dance?
A) A little more than 300 B) A little less than 300
C) A little more than 200 D) A little less than 200

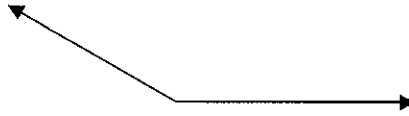
Computations with Percents

1. What is 60% of 72?
2. Connie got 18 out of 30 questions correct on her test. What is this as a percent?
3. Sally purchased a sweater on sale for 30% off. If the original price is \$45.00, then how much did she save with the sale?
4. Kyle spent \$75 of his \$325 paycheck. What percent did he spend?

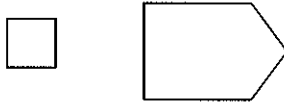
MEASUREMENT

Approximating Measures

1. What is the approximate measurement of the angle below?



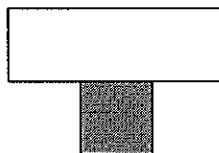
2. If the area of the square is 8 square units, about how many square units is the figure to the right?



- A) 40 sq. units
B) 24 sq. units
C) 32 sq. units
D) 48 sq. units
3. If the length of the kitten is 24 centimeters (not counting the tail), what is the approximate measure of the mouse (again, not counting the tail)?



4. Approximately what fraction of the figure is NOT shaded?



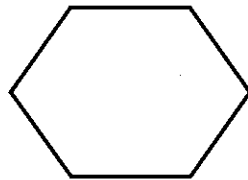
Customary and Metric Measures

1. Which is the BEST unit to measure the weight of a dump truck?
A) grams B) tons C) gallons D) milligrams
2. The length of a math textbook is about
A) 30 meters B) 30 millimeters C) 30 kilometers D) 30 centimeters
3. If your swimming pool is 30 feet long, 18 feet wide, and 8 feet deep, what is the volume of the pool?
4. Jim is running a 5 kilometer road race. How many meters is that?
A) .5 meters B) 5000 meters C) 50,000 meters D) 500 meters
5. A liter bottle of milk is closest in measure to
A) a quart B) a gallon C) a ton D) a gram
6. A can of soda is approximately
A) 350 milliliter B) 350 liters C) 350 kiloliters D) 350 centiliters

SPATIAL RELATIONSHIPS AND GEOMETRY

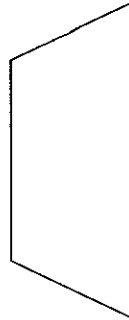
Geometric Shapes and Properties

1. Draw an octagon.
2. What is the name of the shape below?



- A) Quadrilateral B) Pentagon C) Hexagon D) Heptagon

3. Which quadrilateral is shown below?

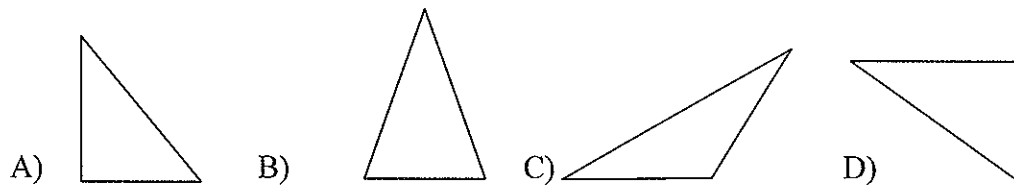


- A) Trapezoid B) Rhombus C) Square D) Parallelogram

4. Which of the following does not describe a rhombus?

- A) all four sides are equal B) opposite angles are equal
B) all four angles are equal D) diagonals bisect each other

5. Which triangle below is an obtuse triangle?

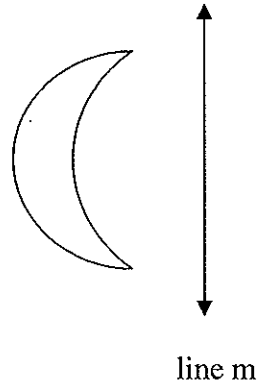


6. Draw an isosceles triangle and explain why it is isosceles.

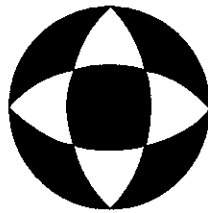
7. Draw a cylinder.

Spatial Relationships

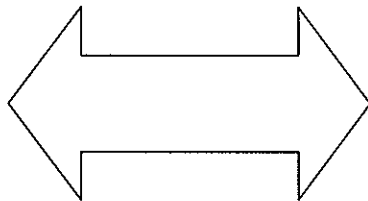
1. Draw a reflection of the figure along line m



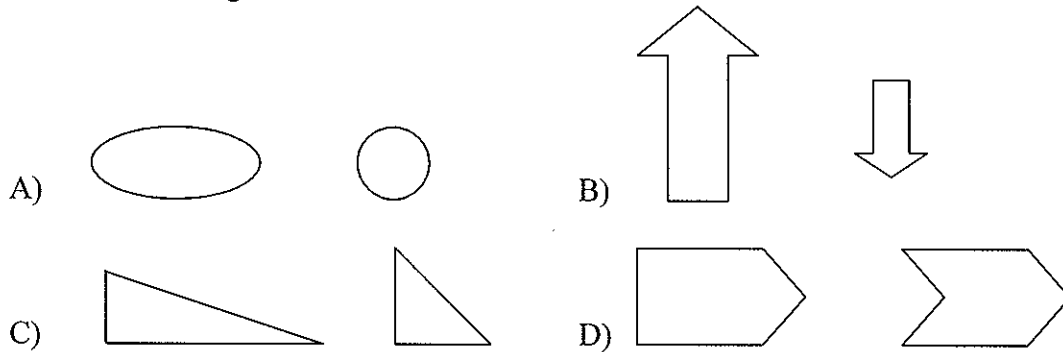
2. Draw a line of symmetry in the figure below:



3. Name one letter of the alphabet that has at least two lines of symmetry.
4. Draw a figure similar to the one below and write an explanation of why they are similar.



5. Which two figures are similar?



PROBABILITY AND STATISTICS

Tables, Graphs and Charts

1. The life expectancy of people born in certain years is shown in the chart.

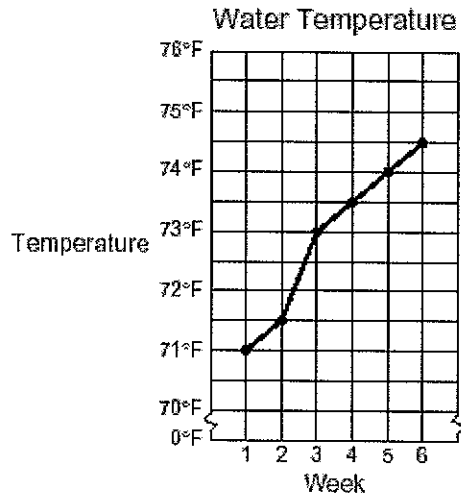
Life Expectancy at Birth

Year of Birth	Life Expectancy (yr)
1920	54.1
1930	59.7
1940	62.9
1950	68.2
1960	69.7
1970	70.8
1980	73.7
1990	75.4

Based on the data in the chart, which of the following is *not* a reasonable statement?

- The life expectancy of a person born in 2000 will be greater than 75.4 years.
- The life expectancy of a person born before 1920 is less than 54.1 years.
- The life expectancy of a person born in 1935 is between 59.7 years and 62.9 years.
- The life expectancy of a person born in 1975 is less than 70 years.
- The life expectancy of a person born in 1962 is less than the life expectancy of a person born in 1963.

The following graph is needed to answer questions 2 & 3



2. At what week was the temperature 73.5 degrees?
 - a. Week 1
 - b. Week 2
 - c. Week 3
 - d. Week 4
 - e. Week 5

3. What is the difference between the highest and lowest temperature?
 - a. 2.5 degrees
 - b. 3 degrees
 - c. 3.5 degrees
 - d. 4 degrees

4. The table shows the number of candy bars Jimmy sold last week.

Candy Bar	Number Sold
Chocolate	42
Caramel	37
Peanut butter	29
Mint	25

Create a BAR GRAPH to show the information given in the table. Be sure to write a title and label the axes on the graph.

Statistics and Data Analysis

1. Find the mean and median of the following numbers: 142, 181, 321, 247, 274.

For questions 2 – 4, use the table below.

Seat Location	Price
Main floor, center	\$125
Main floor, side/back	\$75
Mezzanine	\$65
Balcony	\$50

2. What was the mean price per ticket if a person bought 1 ticket of each price?
- \$87.50
 - \$78.75
 - \$75
 - \$70
3. If John has \$120 and he needs to buy 2 tickets, in which seats could he sit?
- Main floor, center
 - Main floor, side/back
 - Mezzanine
 - Balcony
4. What is the median ticket price?
- \$60
 - \$65
 - \$70

d. \$75

Probability

1. How many different lunches can be made with a choice of hot dog, salad, or chili; soda, milk, or lemonade; and crackers, bread, or a roll?
 - a. 9
 - b. 12
 - c. 27
 - d. 3

2. A bag contains 2 black buttons, 3 white buttons and 5 gray buttons. What is the probability of picking a white button on the first try?

3. A spinner has the numbers 1 – 8 on it. What is the chance of the spinner landing on an even number?
 - a. $\frac{5}{8}$
 - b. $\frac{3}{8}$
 - c. $\frac{1}{2}$
 - d. $\frac{1}{4}$

4. Jordan is about to roll two six-sided number cubes, each numbered 1 through 6. When Jordan rolls the pair of cubes, he adds the numbers on the two faces that end face up. What is a REASONABLE statement about a sum that Jordan may get?
 - a. The least likely sum Jordan will roll is 4.
 - b. Jordan is equally likely to roll a sum of 3 or a sum of 6.
 - c. Jordan is more likely to roll a sum of 2 than a sum of 12.
 - d. The most likely sum Jordan will roll is 7.

5. I have 3 red socks, 4 blue socks and 6 green socks in a drawer. What is the probability that I will not pick a blue sock?
 - a. $\frac{3}{13}$
 - b. $\frac{4}{13}$
 - c. $\frac{6}{13}$
 - d. $\frac{9}{13}$

PATTERNS

Patterns

1. These numbers follow a pattern.

4, 8, 12, 16, _____, 24

Which number is missing from the pattern? _____

Write a sentence that explains why you think that is the missing number.

2. These numbers follow a pattern.

1, 4, 3, 6, 5

What is the eighth number in this pattern? _____

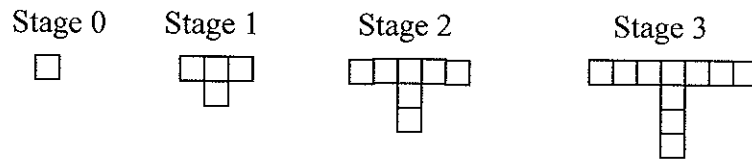
Write a sentence explaining what you think the pattern is.

- 3.



Draw the fourth figure in this pattern.

4. There is a rule between each stage number and the number of blocks in the following figures. Which rule states this relationship?



- a. $x + 3$
- b. $3x + 1$
- c. $2x + 2$
- d. $-x + 3$

5. What is the next term in this sequence? Explain the pattern used.

2, 5, 10, 17, 26, 37.....

- a. 48
- b. 50
- c. 46
- d. 51

ALGEBRA AND FUNCTIONS

Algebraic Concepts

1. Mike bought a bag containing 136 marbles. He gave x marbles to his brother. He then divided the remaining marbles equally into 3 bags. Which expression tells the number of marbles in each bag?
 - a. $(136 - x) / 3$
 - b. $(x - 136) / 3$
 - c. $136 - (x / 3)$
 - d. $(136 + x) / 3$

2. Simplify $\frac{2 + 8 \div 2 \cdot 4}{6 - 3^2 \div 3}$
 - a. 9
 - b. 6
 - c. 1
 - d. 3

3. Sue bought a sweater that cost y dollars. She then paid the clerk with 3 \$20 bills. Which expression tells Sue's correct change?
 - a. $\$20 - 3y$
 - b. $\$20(3 - y)$
 - c. $3(\$20) - y$
 - d. $(\$20 - y) / 3$

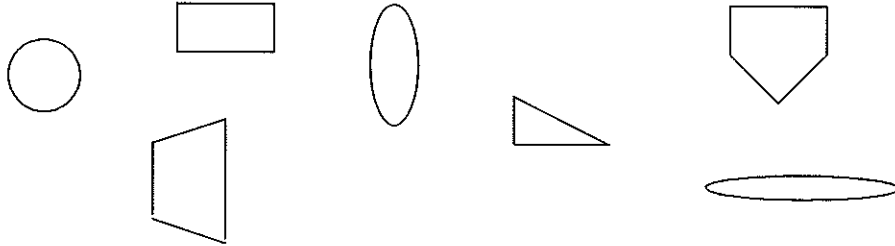
4. Simplify $[5^3 - 2 \cdot 3 + 2^3 - (7 - 4)] / 2$

5. A square has an area of 90 meters squared. What is the approximate length of a side?
 - a. Between 7 and 8 meters
 - b. Between 8 and 9 meters
 - c. Between 9 and 10 meters
 - d. Between 6 and 7 meters

DISCRETE MATHEMATICS

Classification and logical reasoning

1. Place the figures below in 2 groups so that the figures in each group have something in common.



2. Todd, Keith, Ann, and Janice (two married couples) each have a favorite sport. The sports are running, swimming, biking, and golfing. Determine from the following clues who likes to watch which sport.

- Todd hates golf.
- Keith can't run around the block, and neither can his wife.
- Each women's favorite sport does not involve a ball.
- Alice bought her husband a new bike for his favorite sport.

3. What statement best describes each group of letters?



- Letters made with two lines and letters made with 3 lines.
- Letters without parallel lines and letters with parallel lines.
- Letters without parallel lines and letters with only parallel lines.
- Letters without parallel lines and letters with exactly two parallel lines.

4. Put these numbers in two groups so that the numbers in each group has something in common. Then write a sentence that explains how you grouped the numbers.

3, 4, 20, 6, 5, 9, 18, 10, 27, 19, 12, 16, 24

5. Draw a Venn diagram that represent the following data:

In a homeroom:

13 students like baseball.

17 students like football.

8 students like both football and baseball.

INTEGRATED UNDERSTANDINGS

Mathematical Applications

1. Steve has \$400 to spend on clothes for school. He has narrowed his choices down to the list in this chart.

Shirts	Price
Nauticals	\$24.95
Polar	\$26.75
Hilly Slope	\$14.58
Pants	Price
Docker Rockers	\$70.88
Space pants	\$60.75
Shoes	Price
Walkers	\$70.75
Runners	\$84.60

He will buy at least 3 shirts, two pairs of pants, and 1 pair of shoes. Show what he could buy if he wants to spend between \$250 and \$300.

2. Megan wants to earn enough to attend soccer camp this summer. She has saved \$75 already. Soccer camp costs \$325. Megan earns \$7.25 an hour and plans to work 10 hours each week. How many weeks will it take Megan to earn enough money for soccer camp.