



Kittatinny Regional High School

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2005 Governor's School of Excellence



June 2018

8th Grade Math and Algebra I Summer Assignment

Dear Student and Parent/Guardian,

In order to keep your mind sharp and prepare you for the upcoming year, your 8th grade teachers have selected topics and problems for you to work on over the summer break. It is expected that you will take the time to read, discuss, and do the work that is given in this packet. By doing so, it will allow you to be more prepared as an individual for success in the class.

There are some topics where you should already be proficient. Throughout the year we want to be able to focus only on new curriculum material, without the need for review of prior knowledge. The summer assignment covers some of the areas of prior knowledge that you need to be proficient with. Please complete this over the summer and have it with you on the first day of school. It is very likely that there will be a quiz on any of these topics within the first week of school.

In addition, we also suggest that you **heavily practice your basic integer operations: multiplication, division, addition, subtraction, as well as rational number operations (fractions and decimals): multiplication, division, addition, and subtraction.** Listed below are a few websites to be utilized as great practice resources:

www.math-drills.com
www.math-aids.com
www.khanacademy.org
www.ixl.com

Again, we thank you for being diligent in completing this work. Our goal is to prepare you for continued success throughout your 8th grade year, your four years in high school, college, and beyond into your chosen career. We look forward to working with you and your family throughout the upcoming school year.

Enjoy your summer and be prepared to work when you come back.

Sincerely,

Your 8th Grade Math Teachers

Kittatinny Regional Board of Education
"Imparting Knowledge That Works for Our Children" - Sussex County's First Star School

Name _____

**Summer Assignment for
Incoming 8th Grade Students**

1. A recipe includes 4 cups of flour and $\frac{2}{3}$ cup of brown sugar. Write the ratio of the amount of flour to the amount of brown sugar as a fraction in simplest form. Show your work!

Answer _____

2. A bicyclist rides $\frac{1}{5}$ mile in $\frac{1}{75}$ hour. Write this rate as a unit rate in miles per hour. Show your work!

Answer _____ miles per hour

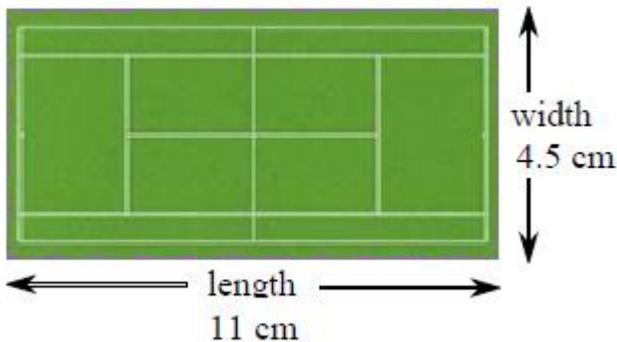
3. Charles is going camping with his family. Their campsite is $\frac{3}{4}$ mile away. They walk at a steady speed of $1\frac{1}{4}$ mile/hr. How many minutes will it take them to get to the campsite? Show your work!

Answer _____

4. Amelia needs to buy some dog food. At the nearest store, 5 bags of dog food cost \$28.75. How much would 6 bags of dog food cost? Show your work!

Answer _____

5. The scale drawing of a backyard tennis court is shown below. If the scale is 1 cm = 2 m, what is the area of the actual tennis court? Show your work!



Answer: _____

6. In a certain city, there are three stores where you can rent DVDs. The table shows the cost y in dollars to rent x DVDs at store A. The graph represents the cost at store B. The equation $y = 3.55x$ represents the cost at store C. At which store is the cost of renting DVDs the least?

Store A	
Number of DVDs (x)	Cost in Dollars (y)
2	6.90
4	13.80
6	20.70



Answer: _____

7. If simple interest on \$5,000 for 9 years is \$3,150, then what is the interest rate? Show your work!

Answer: _____

8. Last year the Debate Club had 12 members. This year there are 15 members in the club. What was the percent change in membership? Show your work!

Answer: _____

9. The selling price of a TV set was \$600. After 6 months of not selling, it was marked down by 30%. After another 6 months of not selling, it is further marked down by 20% of the discounted price. Find the sale price after both markdowns. Show your work!

Answer: _____

10. Order the values from least to greatest

$$|0.99| \quad |-26| \quad |-9|$$

| _____ | | _____ | | _____ |

11. Subtract

$$10.0 - (-3.5)$$

Answer: _____

12. Find the product. Write your answer as a simplified fraction or mixed number. Show your work!

$$-\frac{5}{8} \cdot \frac{14}{15}$$

Answer: _____

13. Marco is hanging birdhouses on his fence, which includes one red post. The first birdhouse is 25.8 in. to the right of the red post and the second birdhouse is 22.2 in. to the left of the first birdhouse. Fill in the blanks to describe the location of the second birdhouse with respect to the red post. Show your work!

The second birdhouse is _____ inches to the _____ of the red post.
(left / right)

14. Use the formula $F = \frac{9}{5}C + 32$ to convert $10^{\circ}C$ to degrees Fahrenheit. Show your work!

Answer: _____

15. The water level of a lake fell by 10 inches during a 5 week period. At what rate was the water level falling in inches per week? Show your work!

Answer: _____

16. The water level of a lake fell by $2\frac{1}{2}$ inches during a $2\frac{6}{7}$ week period. At what rate was the water level falling in inches per week? Show your work!

Answer: _____

17. The table shows the ratio of games lost to games played for the school softball team. Complete the table by writing the ratio as a simplified fraction, a decimal and a percent.

Games Lost Compared to Games Played			
Ratio	Fraction	Decimal	Percent
12 : 25			

18. Last year, a college's tuition was \$41,000. This year, the tuition increased by 4%. Find this year's tuition. Show your work!

Answer: _____

19. Circle ALL expressions that contain like terms.

$$-3m + 3m \quad 4y + 4x \quad t + 6.75t$$

$$12m + mn \quad 5xy - 9xy \quad 6 - 3p$$

20. Solve the following equation. Show your work!

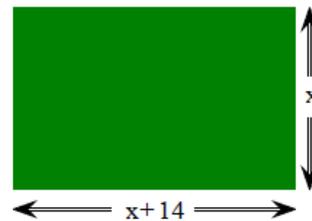
$$4x - 9 = 15$$

Answer: _____

21. Two communications companies offer calling plans. With Company X, it costs 35cents to connect and then 3 cents for each minute. With Company Y, it costs 15 cents to connect and then 2 cents for each minute. Which of the following expressions shows how much more Company X charges than Company Y for making a call that lasts n minutes?

- A. $35n - 3 - 15n - 2$
- B. $(35 + 2n) - (15 + 3n)$
- C. $(35 + 3n) - (15 + 2n)$
- D. $(35n - 2) - (15n - 3)$

22. Alexander is building a fenced-in pen in his backyard for his dog as shown below



Write a simplified expression that represents the total amount of fencing he will need. Show your work!

Answer: _____

23. Which equation models the following problem?

A group of 5 friends each have x action figures in their collections. Each friend buys 11 more action figures. Now the 5 friends have a total of 190 action figures.

- A. $5(x+11) = 190$
- B. $5x + 11 = 190$
- C. $11(x+5) = 190$
- D. $x + 55 = 190$

How many action figures did each friend start with?
Show your work!

Answer: _____

24. A teacher writes the inequality $x \div 4 < 20$ on the board. A student solves the inequality incorrectly and gets the result $x < 5$. What is the correct result and what was the student's error?

Correct result _____

Show your work!

What was the student's error?

- A. The result should be an equation, not an inequality
- B. The student should have added, not divided
- C. The student should have multiplied, not divided
- D. The inequality sign in the result should be $>$, not $<$

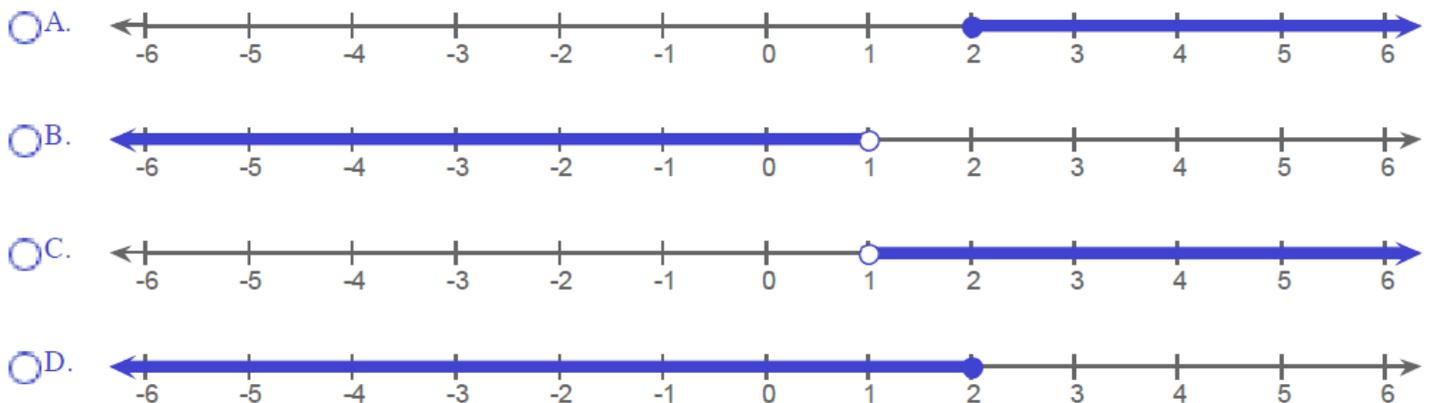
25.

5 times a number plus 15 is more than 20. Write and solve an inequality. Graph the solutions.

Let x be the number. Which inequality below represents the situation?

- A. $5x + 15 < 20$
- B. $5x + 15 > 20$
- C. $5x + 15 \leq 20$
- D. $5x + 15 \geq 20$

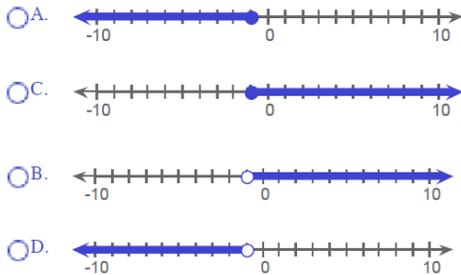
Which graph shows the solutions?



26. Solve the inequality for y . Show your work!

$$2(3y - 5) < -16$$

Which graph shows the solution to the inequality?



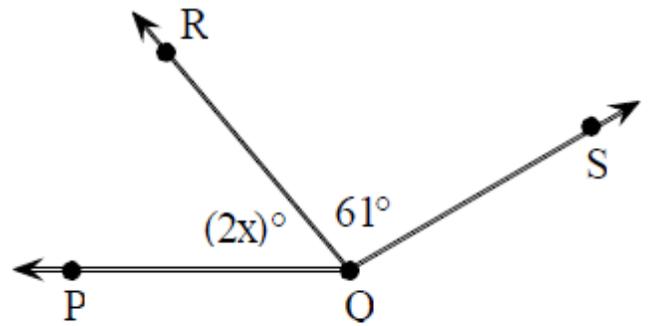
28. If an angle measures 144° , what is the measure of its supplement?

Answer _____

30. The distance around a meteor crater is 9,416 ft. Find the diameter of the crater. Use $\pi \approx \frac{22}{7}$ in the formula $C = \pi d$. Show your work!

Diameter is _____

27. The measure of $\angle PQS$ is 111° . What is the value of x ?



(The figure is not shown to scale.)

Answer: $x =$ _____

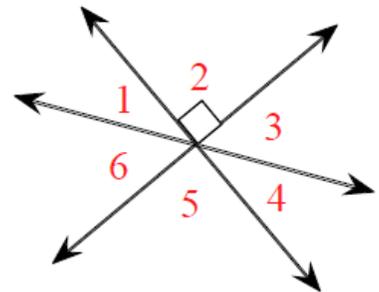
28. In the diagram, $\angle 2$ is a right angle and $m\angle 1 = 35^\circ$. Find the measure of the following angles:

$$m\angle 3 = \underline{\hspace{2cm}}^\circ$$

$$m\angle 4 = \underline{\hspace{2cm}}^\circ$$

$$m\angle 5 = \underline{\hspace{2cm}}^\circ$$

$$m\angle 6 = \underline{\hspace{2cm}}^\circ$$



(The figure is not shown to scale.)

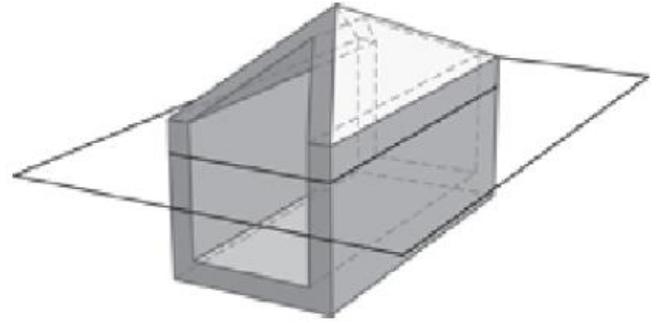
31. A water sprinkler sends water out in a circular pattern. How large is the watered area if the radius of the watering pattern is 11 ft? Use $\pi \approx 3.14$ in the formula $A = \pi r^2$. Show your work!

Area = _____

32. A circle has a circumference of 15.7 cm. What is the area of the circle? Use $\pi \approx 3.14$. Do not round your answer. Show your work!

Area = _____

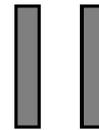
33. Which choice shows the cross section of the horizontal slice shown in the diagram?



A.



B.



C.

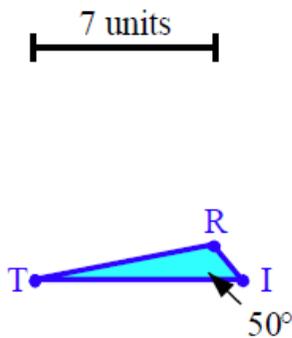


34. Triangle TRI has the following measurements:

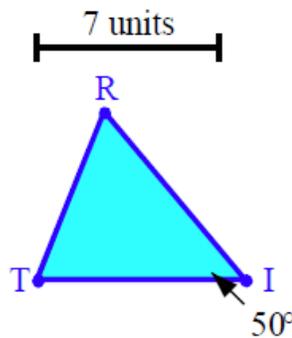
$$TR = 7 \text{ units}, IT = 8 \text{ units}, m\angle TIR = 50^\circ$$

Which of the following could be triangle TRI?
Select ALL that apply.

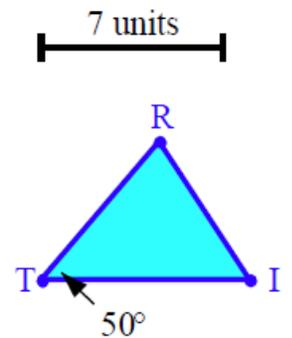
A.



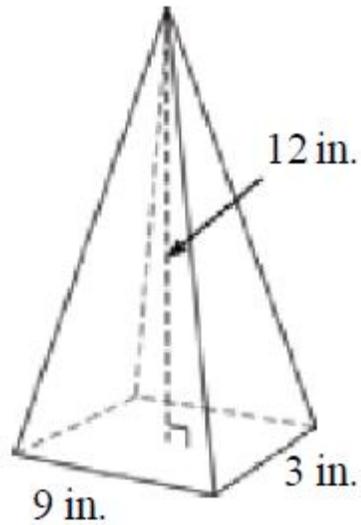
B.



C.



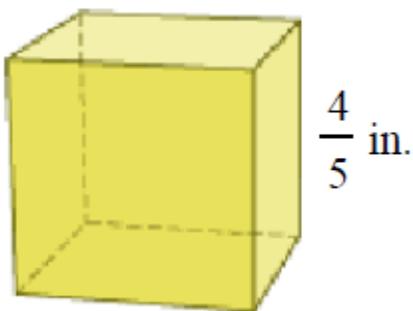
35. A vertical plane intersects the front face and the vertex of the pyramid shown. The figure is NOT drawn to scale.



Which statement best describes the cross section?

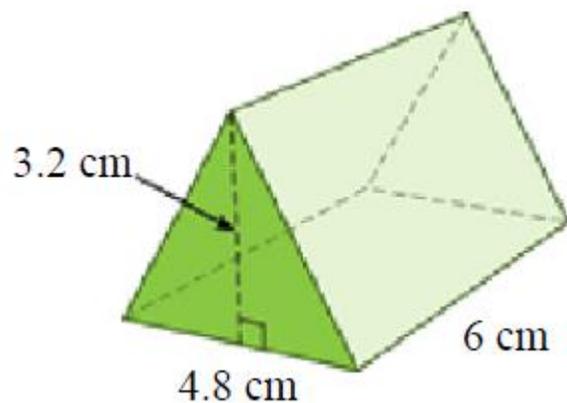
- A. A rectangle with length and width equal to the length and width of the base of the pyramid.
- B. An equilateral triangle with base length equal to the width of the base and height less than the height of the pyramid.
- C. An isosceles triangle with base length equal to the width of the base and height less than the height of the pyramid.
- D. An isosceles triangle with base length equal to the width of the base and height equal to the height of the pyramid.

36. Find the surface area of the cube. Show your work! Write your answer as a mixed number.



Surface Area = _____

37. Find the volume of the triangular prism. Show your work!



Volume = _____

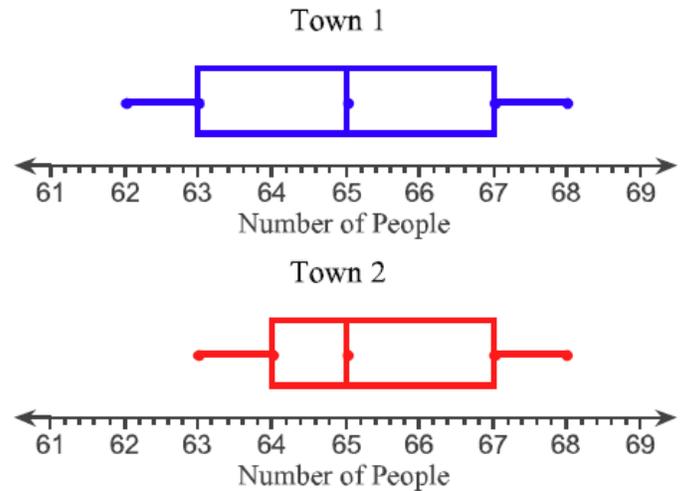
38. Felix wants to know what movies people like in his town. He surveys college students and estimates from the convenience sample that 14,000 people in the town like comedy movies. Which of the following is the best description of the estimate?

- A. The estimate is not accurate because the group surveyed is a certain age group and may be biased
- B. The estimate is not accurate because the group surveyed is random
- C. The estimate is accurate because the group surveyed is a certain age group and may be biased
- D. The estimate is accurate because the group surveyed is random

40. An oval track is made by enclosing semicircles on each end of a 60 m by 120 m rectangle. How far would a sprinter run if they ran exactly 4 times around the track? Use $\pi \approx 3.14$ and do not round your answer. Show your work!

Answer: _____

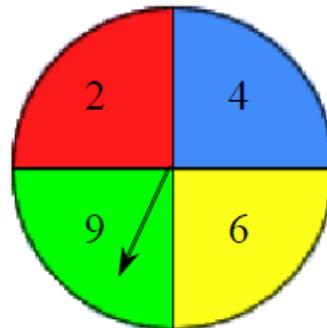
39. The following shows the amount of people that go to town meetings in two towns. The data was collected over a period of one year.



Which of the following is the best inference based on the median values?

- A. More people generally go to the meetings in Town 2
- B. The same amount of people in each town go to the meetings
- C. More people generally go to the meetings in Town 1

41. You have one spin of the spinner shown below. What is the sample space and how many outcomes are in the sample space?



Sample Space: _____

Number of Outcomes: _____

42. The heights of the students in a class are (in inches) 59, 63, 56, 74, 69, 75, 78, 62, 65, 74, 56, 65, 62, 60, 56, 71, 74, 70, 68, and 66. What is the experimental probability that a student chosen at random is 5 feet 5 inches tall? Write your answer as a simplified fraction. Show your work!

Answer: _____

44. A machine can make 36 parts in 3 hours and 60 parts in 5 hours. Write an equation in $y = mx$ form, where y represents the number of parts produced and x represents the number of hours the machine is running. Then use your equation to determine how many parts the machine can make in an 8 hour day of work.

Equation: _____

The machine can make _____ parts in 8 hours.