



The West Islip School District

WEST ISLIP HIGH SCHOOL
1 LION'S PATH
WEST ISLIP, NY 11795

Look at Education Shine !

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PLEASE READ, THIS AFFECTS YOUR CHILD.

June, 2004

Dear Parent/Guardian:

As you are aware, New York State has raised the standards for all our students. New testing requirements are now in place in the middle schools, and our 8th grade students have begun to prepare to take the "Math A" Regents exam.

In our pursuit of excellence, West Islip School District has modified its mathematics program to help our students better prepare for these tests. In order to be successful on these exams, students must continuously maintain their mathematical skills. So that our students can achieve this goal, the mathematics department has prepared a packet of problems for students to work on during the summer. Those students entering 6th, 7th, 8th, and 9th grades in September will receive packets before the last day of class.

Each of the packets is grade specific, and consists of questions that the student should be able to solve based upon concepts learned. These packets should be worked on during the course of the summer. ***We need your assistance to ensure that these problems are completed over the entire summer.*** The completed work will be collected by your child's math teacher in September, and teachers will count the completion of this assignment as bonus points in your child's first quarter grade.

Answers to the problems will be available in the main office of each of the middle schools beginning on July 26th. In addition, the answers will be posted in the Summer Activities section of the district web site (www.westislipufsd.k12.ny.us). If a packet is lost, a replacement can be obtained on line or at the main office of either middle school.

Thank you for your cooperation in assisting your child in maintaining his/her mathematical skills during the summer.

Sincerely,

Michael Vertovez
Director of Mathematics (K-12)

ENTERING 9TH GRADE SUMMER PACKET

MATHEMATICS

This packet is designed to help you remember the topics you have covered in mathematics in 8th grade. You should do a little each week, and not wait until the end of the summer to complete. It is important for you to do this because you are in the middle of preparing to take the Math A Regents exam which you will take during 9th grade.

You may use math textbooks or your notebooks from 7th and 8th grade for help in remembering definitions or setting up the problems.

Please set up your looseleaf paper in the following manner, label each problem number and **SHOW ALL WORK**. You should have *no more* than 8 problems on each side of paper. **CIRCLE THE ANSWER.**

Name _____	

The answer keys will be available in the middle school office in mid-summer.

Name: _____

- 1) Which number below is irrational?

$$\sqrt{\frac{4}{9}}, \sqrt{20}, \sqrt{121}$$

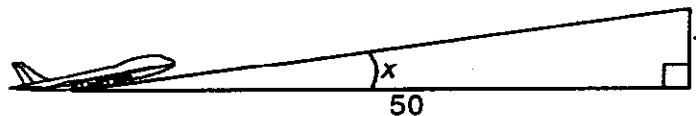
Why is the number you chose an irrational number?

- 2) The expression $\sqrt{93}$ is a number between
 A) 3 and 9 B) 9 and 10 C) 8 and 9 D) 46 and 47
- 3) The tailgate of a truck is 3 feet above the ground. The incline of a ramp used for loading the truck is 15° , as shown below.

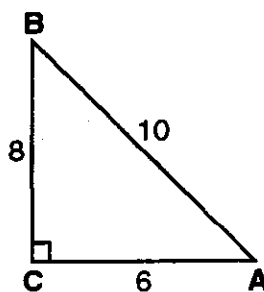


Find, to the nearest tenth of a foot, the length of the ramp.

- 4) In the accompanying diagram, the slope of the ascent of an aircraft is
- $\frac{7}{50}$
- . Find
- $m\angle x$
- , the angle of elevation, to the nearest degree.



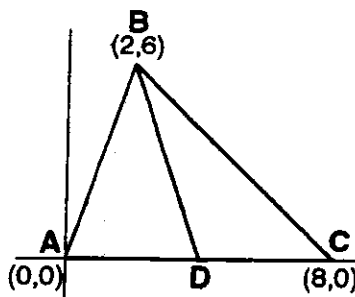
- 5) In the accompanying diagram of right triangle ABC,
- $AB = 10$
- ,
- $BC = 8$
- ,
- $CA = 6$
- , and
- $\angle C$
- is a right angle.



Which angle of the triangle has a cosine equal to 0.8000?

- 6) In a rectangle, the length of the diagonal is 15 and the length of the shorter side is 7. Find, to the nearest degree, the number of degrees in the angle formed by the diagonal and the longer side of the rectangle.

- 7) In the accompanying diagram of triangle ABC, \overline{BD} bisects \overline{AC} .



Find the slope of \overline{BD} .

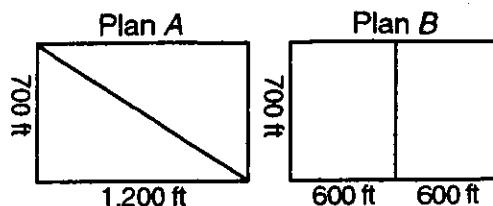
- 8) Davis is trudging up the last 100 slippery feet of a mountain. If he takes two steps forward and slides back one, approximately how many steps will it take to get to the top if each step he takes is about 1 foot in length?
- 9) A square parking lot has a length measuring 200 feet. In a section of the parking lot is a square picnic area with a length of 50 feet.



If asphalt pavement costs \$0.52 per square foot, what is the cost of paving the parking lot? (Round to the nearest dollar.)

- 10) A taxi begins a fare with an initial charge of \$2 on the meter and charges 20¢ per one-tenth of a mile. How much will a 10-mile journey cost?
- 11) The profits in a business are to be shared by the three partners in the ratio of 4 to 6 to 5. The profit for the year was \$185,175. Determine the number of dollars each partner is to receive.
- 12) Hanna must travel to a branch office of her company for 8 days. Her company tells her to rent a car from one of the two agencies whose rates are listed below.
- Agency A: \$32.00 per day plus \$.05 per mile.
Agency B: \$20.00 per day plus \$.10 per mile.
- (a) If the total distance traveled per day is 158 miles, which agency would be the *least* expensive to rent from for the 8 days?
(b) How much will Hanna save by renting from the less expensive agency in comparison to the more expensive agency?

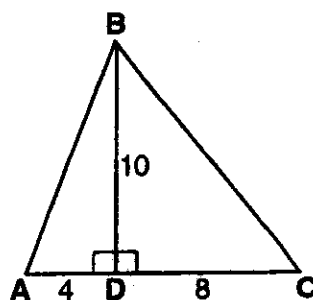
13)



A farmer has a rectangular field, 700 feet by 1,200 feet, that he wants to fence in. He then plans to divide the lot into two smaller plots as shown above. In Plan A, the field becomes two right triangles, and in Plan B, the field becomes two rectangles that are 700 feet by 600 feet.

- (a) Find, to the nearest tenth of a foot, the amount of fencing needed to enclose and divide field for Plan A and Plan B.
 (b) If fencing costs \$5.40 per yard, find the cost for each plan to the nearest dollar.

14) In the accompanying diagram of $\triangle ABC$, $AD = 4$, $BD = 10$, and $CD = 8$.



What ratio represents the area of $\triangle ABD$ to the area of $\triangle BCD$?

- 15) A pair of diamond earrings is priced at \$325 and is discounted to \$150. Find the markdown percentage rate to the nearest whole number.
- 16) At *Shop-A-Lot*, the price of chicken is \$1.89 a pound for a five-pound package. The store offers a 15% discount on purchases of ten pounds or more. If Samantha buys a twenty-five pound package, how much will she pay for her total purchase?
- 17) A vase that regularly sells for a price of \$75 is on sale for 25% off. The sales tax on the vase is 7%. Will the final total cost of the vase differ depending on whether the salesperson deducts the discount before adding the sales tax or takes the discount after computing the sum of the original price and the sales tax on \$75? *Explain.*
- 18) The mean (average) weight of three pigs is 33 pounds. One of the pigs, Portly, weighs 25 pounds. The other two pigs, Sylvester and Flo, have the same weight. Find Flo's weight.
- 19) On his first five math tests, Ryan received the following scores: 80, 88, 91, 60, and 79. What test score must Ryan earn on his sixth test so that his average (mean score) for *all* six tests will be 83? [*Show all work.*]

- 20) One black marble and two red marbles are in a bag. Erika picks a marble from the bag at random. She looks at it, returns it, and makes a second random selection.
- Draw a tree diagram or list the sample space showing all possible outcomes.
 - What is the probability that two red marbles were selected?
 - What is the probability that two black marbles were selected?
 - What is the probability that one black and one red marble were selected?
 - What is the probability that at most one black marble was selected?
- 21) Lunch at the school cafeteria consists of a sandwich, a dessert, and a beverage. The sandwich choices are tuna, ham, or peanut butter. Dessert is a cookie or Jell-O, and the beverage is either milk or orange juice.
- Draw a tree diagram or list the sample space for all possible lunches.
 - Find the probability of a student having a tuna sandwich, Jell-O, and milk.
 - Find the probability of a student having milk as the beverage.
 - Find the probability of a student having a ham sandwich, a cookie or Jell-O, and orange juice.
- 22) Colin has a pocketful in change totaling \$4.92, with equal amounts of pennies, nickels, dimes, and quarters. How many total coins does he have in his pocket?
- 23) Solve for x : $5(2x - 4) = 10$
- 24) Solve for x : $7(x - 2) = 5(x + 4)$
- 25) Solve for x : $\frac{3}{2}x - 12 = 18$
- 26) Solve for x : $\frac{x - 3}{4} = \frac{x}{10}$
- 27) Solve for x : $0.3x + 1.7 = 2$
- 28) Solve for x : $0.06x + 0.3x = 7.2$
- 29) Sharon works in a bookstore where she has been allotted \$25,000 to purchase either hard-cover books at \$12 each, or soft-cover books at \$3 each, or some combination of both. If Sharon decides to buy 4,500 soft-cover books, how many hard-cover books can she afford to purchase?
- 30) Solve the following system of equations graphically and check:

$$3x + y = 3$$

$$y = 2x - 7$$

- 31) (a) On the same set of coordinate axis, graph the lines of the following equations

(1) $x + y = 8$

(2) $x = 1$

(3) $y = 3$

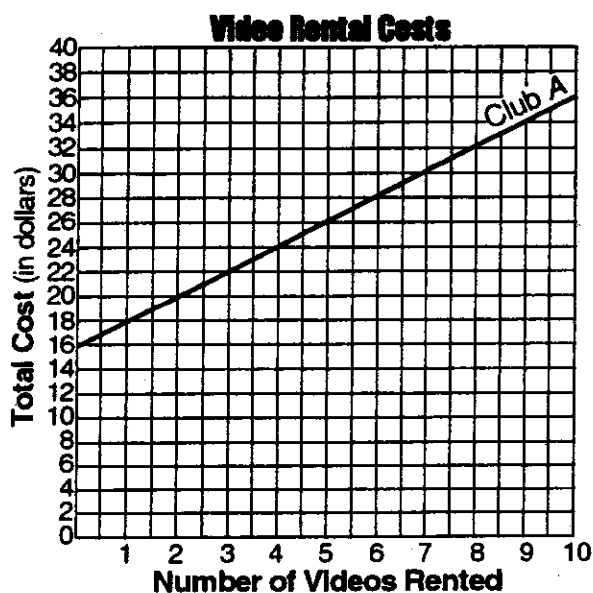
- (b) Find the area of the triangle formed by the three lines graphed in part (a).

- 32) Two video rental clubs offer two different rental fee plans:

Club A charges \$16 for membership and \$2 for each rented video.

Club B has a \$6 membership fee and charges \$6 for each rented video.

The graph below represents the total cost of renting videos from Club A.



- (a) On the same set of xy -axes, draw a line to represent the total cost of renting videos from Club B.
 (b) For what number of video rentals is it less expensive to belong to Club A? [Explain how you obtained your answer.]

33) If $t = -3$, then $3t^2 + 5t + 6$ equals

34) The sum of $3x^2 + x + 8$ and $x^2 - 9$ can be expressed as

35) If $2a^2 - 6a + 5$ is subtracted from $3a^2 - 2a + 3$, the result is

36) The expression $(x^2z^3)(xy^2z)$ is equivalent to

37) The expression $\sqrt{27} + \sqrt{12}$ is equivalent to

A) $\sqrt{39}$

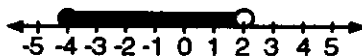
B) $5\sqrt{3}$

C) $5\sqrt{6}$

D) $13\sqrt{3}$

- 38) In a class of 50 students, 18 take music, 26 take art, and 2 take both art and music. How many students in the class are *not* enrolled in either music or art?
- 39) Laura goes shopping. She spends one-fourth of her money on a pair of shorts, and one-third of her remaining money for a belt. If Laura has \$42 left after these two purchases, how much money did she have when she started shopping?
- A) \$126 B) \$504 C) \$84 D) \$144
- 40) The expression $2^3 \cdot 4^2$ is equivalent to
- 41) If 0.0154 is expressed in the form 1.54×10^n , n is equal to
- 42) A total of \$450 is divided into equal shares. If Kate receives four shares, Kevin receives three shares, and Anna receives the remaining two shares, how much money did Kevin receive?

- 43) Which inequality is represented in the graph below?

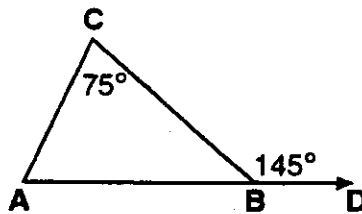


- A) $-4 \leq x \leq 2$ B) $-4 \leq x < 2$ C) $-4 < x \leq 2$ D) $-4 < x < 2$
- 44) In a recent poll, 600 people were asked whether they liked Chinese food. A circle graph was constructed to show the results. The central angles for two of the three sectors are shown in the accompanying diagram.



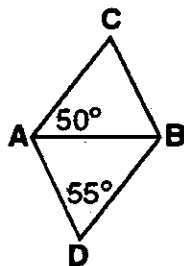
How many people had *no* opinion?

- 49) In the accompanying diagram of $\triangle ABC$, \overline{AB} is extended to D, exterior angle CBD measures 145° , and $m\angle C = 75^\circ$.



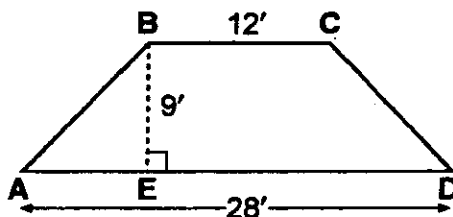
What is $m\angle CAB$?

- 50) In the accompanying diagram, $\triangle ABC$ and $\triangle ABD$ are isosceles triangles with $m\angle CAB = 50^\circ$ and $m\angle BDA = 55^\circ$.



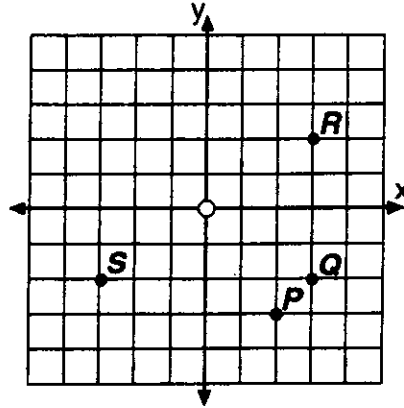
If $AB = AC$ and $AB = BD$, what is $m\angle CBD$?

- 51) Hersch says if a triangle is an obtuse triangle, then it cannot also be an isosceles triangle. Using a diagram, show that Hersch is incorrect, and indicate the measures of *all* the angles and sides to justify your answer.
- 52) The cross section of an attic is in the shape of an isosceles trapezoid, as shown in the accompanying figure.

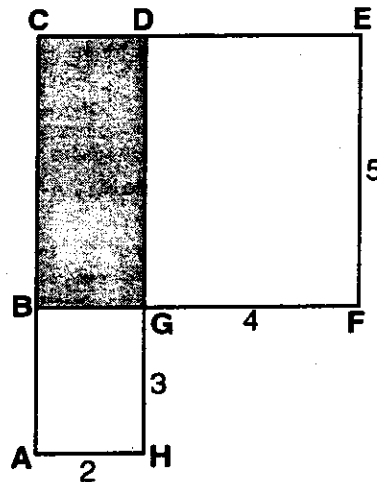


If the height of the attic is 9 feet, $BC = 12$ feet, and $AD = 28$ feet, find the length of \overline{AB} to the nearest foot.

- 53) If $x = -3$ and $y = 2$, which point on the accompanying graph represents $(-x, -y)$?

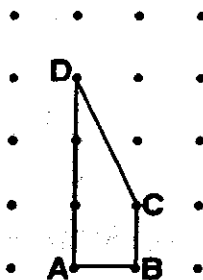


- 54) The Pentagon building in Washington, D.C., is shaped like a regular pentagon. If the length of one side of the Pentagon is represented by $n + 2$, its perimeter would be represented by
- 55) What is the diameter of a circle whose circumference is 5?
- A) $\frac{5}{\pi}$ B) $\frac{2.5}{\pi}$ C) $\frac{5}{2\pi}$ D) $\frac{2.5}{\pi}$
- 56) In the accompanying figure, $ACDH$ and $BCEF$ are rectangles, $AH = 2$, $GH = 3$, $GF = 4$, and $FE = 5$.



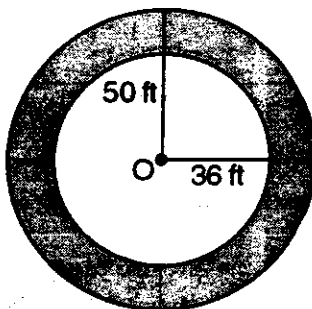
What is the area of $BCDG$?

- 57) In the figure shown below, each dot is one unit from an adjacent horizontal or vertical dot.

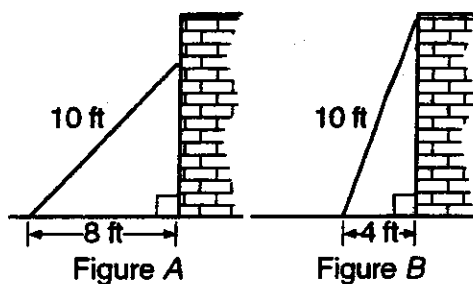


Find the number of square units in the area of quadrilateral ABCD. Show how you arrived at your answer.

- 58) If the circumference of a circle is 10π inches, what is the area, in square inches, of the circle?
- 59) If asphalt pavement costs \$0.78 per square foot, determine, to the nearest cent, the cost of paving the shaded circular road with center O, an outside radius of 50 feet, and an inner radius of 36 feet, as shown in the accompanying diagram.



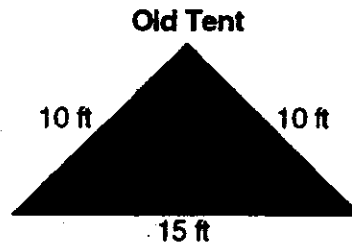
- 60) A 10-foot ladder is placed against the side of a building as shown in figure A below. The bottom of the ladder is 8 feet from the base of the building. In order to increase the reach of the ladder against the building, it is moved 4 feet closer to the base of the building as shown in figure B.



To the nearest foot, how much further up the building does the ladder now reach? [Show all work.]

- 61) The dimensions of a brick, in inches, are 2 by 4 by 8. How many such bricks are needed to have a total volume of exactly 1 cubic foot?

- 62) The Rivera family bought a new tent for camping. Their old tent had equal sides of 10 feet and a floor width of 15 feet, as shown in the accompanying diagram.



If the new tent is similar in shape to the old tent and has equal sides of 16 feet, how wide is the floor of the new tent?

- 63) Linda paid \$48 for a jacket that was on sale for 25% of the original price. What was the original price of the jacket?
- 64) A clothing store offers a 50% discount at the end of each week that an item remains unsold. Patrick wants to buy a shirt at the store and he says, "I've got a great idea I'll wait two weeks, have 100% off, and get it for free" Explain to your friend Patrick why he is incorrect and find the correct percent of discount on the original price of a shirt.
- 65) For what value of x will 8 and x have the same mean (average) as 27 and 5?
- 66) What was the median high temperature in Middletown during the 7-day period shown in the table below?

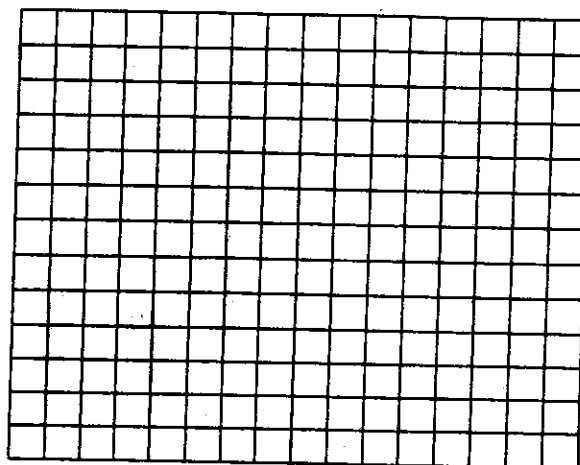
**Daily High Temperature
in Middletown**

Day	Temperature (°F)
Sunday	68
Monday	73
Tuesday	73
Wednesday	75
Thursday	69
Friday	67
Saturday	63

67) In the time trials for the 400-meter run at the state sectionals, the 15 runners recorded the times shown in the table below.

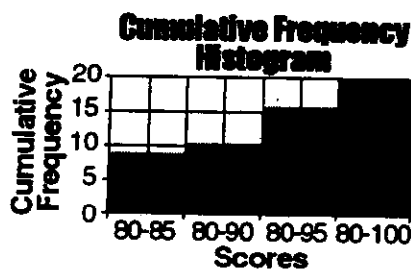
400-Meter Run

Time (sec)	Frequency
50.0-50.9	
51.0-51.9	II
52.0-52.9	III I
53.0-53.9	III
54.0-54.9	IIII



- (a) Using the data from the frequency column, draw a frequency histogram.
- (b) What percent of the runners completed the time trial between 52.0 and 53.9 seconds?

68) The accompanying histogram shows the scores of students on a Math A test.



How many students have scores of 96 to 100?

69) The party registration of the voters in Jonesville is shown in the table below.

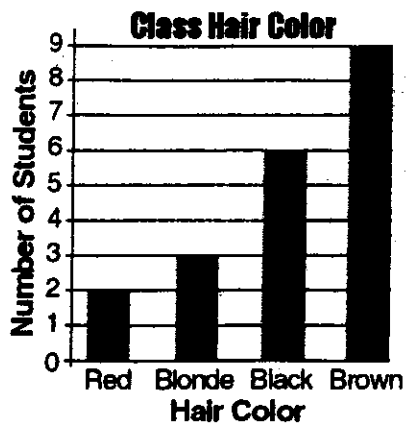
Registered Voters in Jonesville

Party Registration	Number of Voters Registered
Democrat	6,000
Republican	5,300
Independent	3,700

If one of the registered Jonesville voters is selected at random, what is the probability that the person selected is *not* a Democrat?

70) There are twelve tomato plants in a garden. Each plant has seven branches and each branch has four tomatoes growing on it. If one-third of the tomatoes are picked, how many tomatoes were picked?

- 71) The graph below shows the hair colors of all the students in a class.



What is the probability that a student chosen at random from this class has black hair?

- 72) The Grimaldis have three children born in different years.
- Draw a tree diagram or list a sample space to show all the possible arrangements of boy and girl children in the Grimaldi family.
 - Using your information from *part (a)*, what is the probability that the Grimaldis have three boys?
- 73) How many different 6-letter arrangements can be formed using the letters in the word "ABSENT", if each letter is used only once?