Fr Coming 10th

Geometry Readiness Summer Packet

This packet is designed for those who have completed Algebra I and are enrolled in Geometry in the upcoming fall semester.

بسم الله الرحمن الرحيم

Dear parents,

Alsalamo alikom wa rahmato allah wa barkato

During the long summer break students often forget what they learn in school during the academic year. To help our students make the transition to a new grade and maintain their skills. Attached please find a summer package that will help them practice throughout the summer.

Please review the package with your child and have them work on small pieces of it on regular bases. We strongly encourage your child to complete this review. Statistics shows that those who study during summer have a better chance of performing well in school. InshaAllah, I hope that this will be beneficial.

Students must bring their package to the homeroom teacher on the first day of school to be graded as a part of their first quarter progress report.

May Allah bless you with an enjoyable summer, Inshallah.

JAK

Sr. Rasha Amir

HIGH SCHOOL Calculator Requirements

All High School Math courses require the use of a TI-84 Plus graphing calculator. This is the same calculator that was required for Geometry. If you need to purchase another one, many local stores carry this calculator, including Staples, Best Buy, and Walmart. This calculator can also be purchased online. It costs approximately $115.

You should NOT use a graphing calculator to complete this packet, unless the directions note that you can use one.

Summer Packet
Geometry

Welcome to Geometry. The topics in Geometry can be abstract but they have practical applications and serve as a foundation for further study in mathematics and other college level mathematics. Mathematics is a series of building blocks. A student of mathematics must have sufficient Algebra I skills to be proficient in Geometry. The majority of this packet reviews Algebra I skills necessary for success in Geometry. In addition to Algebra I skills, students in geometry must possess some fundamental Geometry skills learned in middle school mathematics. This packet also covers a few of the topics covered in middle school Geometry. The summer packet is to be completed by the first day of school. Teachers will expect students to have completed all practice problems within the packet. During the first few weeks of school, every student will take a test on the content in their class's review packet.

The following is a list of websites to visit for additional Algebra help or practice material:

- Khan Academy
  - Take control of your learning by working on the skills you choose at your own pace. ... Math, science, computer programming, history, art, economics, and more.
- Algebasics
  - has video tutorials explaining the basics of algebra, equations, ratio and proportion, absolute value, polynomials, factoring, linear equations, radicals, applications, and much more.
- Algebra-Class
  - offers help with solving equations, graphing equations, writing equations, inequalities, functions, exponents and monomials, polynomials, and the quadratic equation. It also has a list of resources.
- Algebra Help
  - contains lessons on topics that include equations, simplifying, factoring, distribution, and trinomials, as well as equation calculators and worksheets. This site also has an extensive list of math resources and study tips.
- Help Algebra
  - covers topics such as fractions, percents, decimals, algebraic expressions, addition, multiplication, and word problems. Each section includes explanations and examples.
- College Cram
  - allows students to choose the algebra subject they are struggling with from a drop down menu, select the appropriate chapter, and pick your resources. The oages will feature formula solvers, bottomless worksheets, flashcards, quizzes, interactive overviews, and brief lessons and study sheets.
- Interactive Mathematics
  - has a large section on algebra, including information on factoring and fractions, the quadratic equation, exponents and radicals, systems of equations, matrices and determinants, and inequalities.
- Math Expression
  - has videos, worksheets, and lessons to help you develop your algebra skills. Math topics include algebra, exponents, symmetry, fractions, measurements, angles, and more. The site also includes a list of useful resources.
- Purple Math
  - contains lessons with explanations on everything from absolute value and negative numbers to intercepts, variables, and factoring. In addition, this site includes a forum that allows students to ask questions and receive answers, as well as a list of homework tips and guidelines.

Preparing for Geometry

The purpose of the packet is to help you review and reinforce concepts/topics that are necessary for Geometry. This packet has been designed to provide a review of Algebra I skills that are essential for student success in Geometry. It also contains a review of Geometry concepts students should have previously learned. Completion of this packet over the summer will be of great value to helping students successfully meet the academic challenges awaiting them in Geometry.

Instructions:
Complete all sections of this packet. You will show this completed packet to your Geometry teacher the first day of school. All work must be shown and final answers should be circled.

Students must show work that supports their understanding. Students will be given a grade for completing the packet correctly.

It may be necessary to seek assistance on some questions/concepts... that is fine!

Websites that may be of assistance:

www.mathforum.org/dr.math Use this web site if you have a math questions that you need answered.

www.allmath.com This website will provide you with links to games, reference, general math help and resources.

www.mathforum.com This online community includes teachers, students, researchers, parents and educators who have an interest in math and math education. The site includes Ask Dr. Math, Problems of the Week, discussion groups and much more.

www.AAAmath.com. Customized by grade level and topic, AAA Math features explanations of various mathematical topics, practice problems and fun, challenging games.

www.coolmath.com This fully interactive site and allows the user to sharpen basic math skills, play games and explore new math concepts.

www.figurethis.org Created by the National Council of Teachers of Mathematics, this site helps families enjoy mathematics outside school through a series of fun and engaging challenges.

The more math you explore, the more prepared you will be in September!

Algebra I Topics

Equations
Variables and Expressions
Solving Equations
Solving for a Variable
Rates, Ratios, and proportions

Functions
Graphing Relationships
Relations and Functions
Writing Functions
Graphing Functions
Scatter Plots and Trend Lines
Arithmetic Sequences

Linear Functions
Identifying Linear Functions
Using Intercepts
Rate of Change and Slope
The Slope Formula
Direct Variation
Slope-Intercept Form
Point-Slope Form
Slopes of Parallel and Perpendicular Lines
Transforming Linear Functions

Systems of Equations
Solving Systems by Graphing
Solving Systems by Substitution
Solving Systems by Elimination
Solving Special Systems

Polynomials
Special Products of Binomials
Multiplying Polynomials
Adding and Subtracting Polynomials

Factoring Polynomials
Factors and Greatest Common Factors
Factoring by GCF
Factoring x^2+bx+c
Factoring Special Products

Quadratic Functions and Equations
Solving Quadratic Equations by Factoring
Solving Quad Equations by Using Square Roots
The Quadratic Formula
Completing the Square

Geometry Topics

Angles
Angle Relationships
Triangle Angle Sum

Plane Figures
Area
Perimeter/Circumference
Similarity
Pythagorean Theorem

Solid Figures
Volume
Similarity

Solve each equation.

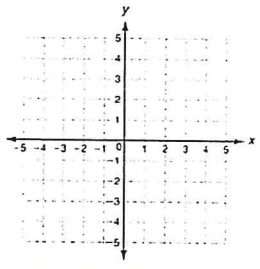
1. $-x-9=x+3$	2. $7r-4+2r=12+7r$
3. $-5-4(n+3)=-19-3n$	4. $-3(3-k)=3(k+3)$

Solve for the indicated variable.

5. $d=rt$ for r	6. $ax+by+c=0$ for y
7. $A=\frac{e+f}{2}$ for e	8. $3k+7n=p$ for k

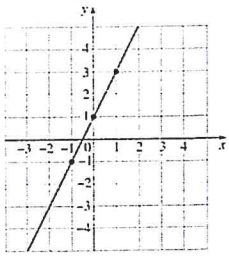
Use intercepts to graph the line described by the equation.

9. $4x+3y=-12$



Find the slope of the line.

10.



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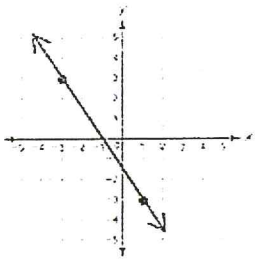

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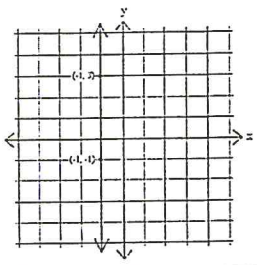

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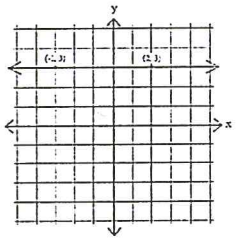


Find the slope of the line that contains each pair of points.

14. $(3,10)$ and $(2,5)$

15. $(12,-2)$ and $(0,6)$

Find the slope of the line described by each equation.

16. $5x+4y=40$

17. $7x+42=2y$

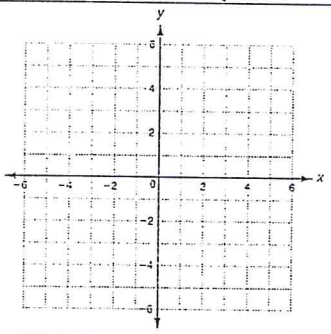
Write the equation that describes each line in slope-intercept form.

18. slope = 8; y-intercept = -6

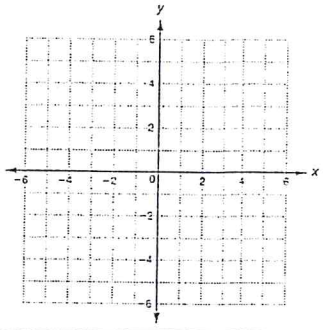
19. slope = $-\frac{1}{2}$, $(8,-1)$ is on the line

Write each equation in slope-intercept form. Then graph the line described by the equation.

20. $y + x = 3$



21. $5x - 2y = 10$



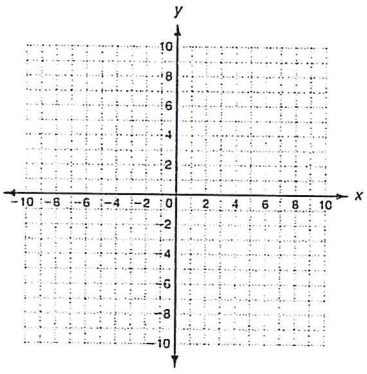
Write an equation in point-slope form for the line with the given slope that contains the given point.

22. slope = 4; (5, 6)

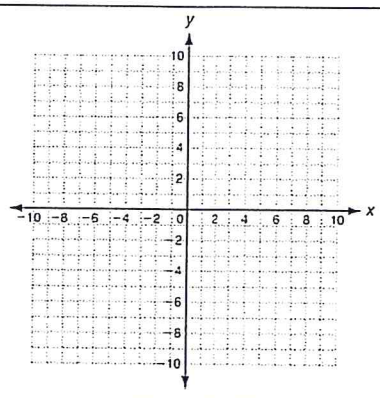
23. slope = –3; (7, –2)

Graph the line described by each equation.

24. $y - 3 = \frac{2}{3}(x + 1)$

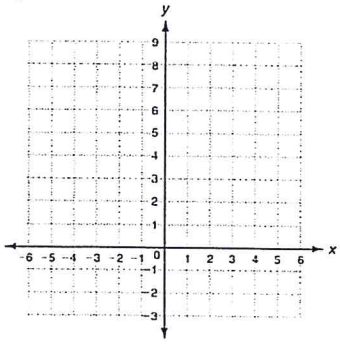


25. $y + 4 = -3(x - 4)$

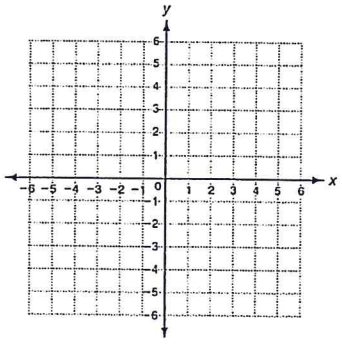


Solve each system by graphing.

26. $\begin{cases} y = 2x + 3 \\ y = -x + 9 \end{cases}$ Solution: _____



27. $\begin{cases} y = -3x + 4 \\ y = 2x + 4 \end{cases}$ Solution: _____



Solve each system by substitution.

28. $\begin{cases} y = 3x + 4 \\ y = 4x + 5 \end{cases}$	29. $\begin{cases} -2x + 2y = 4 \\ 4x + 3y = -15 \end{cases}$

Solve each system by elimination.

30. $\begin{cases} x + 6y = -8 \\ 7x + 2y = 24 \end{cases}$	31. $\begin{cases} 9x + 6y = 12 \\ -18x - 8y = -4 \end{cases}$

Evaluate each expression for the given value(s) of the variable(s).

32. $(3t)^{-3}$ for $t = 2$	33. $4x^{-2}y^{0}$ for $x = 7$ and $y = -4$

Add or subtract.

34. $12x^2 + 11y^2 - 5x^2$	35. $(-8k^2 + 5) - (3k^2 + 7k - 6)$

Multiply.

36. $-4x(x^2-5x+7)$	37. $(y-7)(y-4)$
38. $(x-4)^2$	39. $(5x+2)^2$

Factor each polynomial. (GCF)

40. $12c^3-5c$	41. $6x^2-18x+6$

Factor each polynomial.

42. $x^2+11x+28$	43. x^2-8x+7
44. $x^2-2x-24$	45. $x^2+4x-21$
46. $1-9x^2$	47. $64x^2-1$

Use the Zero Product Property to solve each equation. Check your answer.

48. $(x-4)(x-3)=0$	49. $x(x+13)=0$

Solve each quadratic equation by factoring. Check your answer.

50. $x^2+2x-15=0$	51. $x^2-5x-6=0$

Solve using square roots. Check your answer.

52. $x^2=64$	53. $x^2=900$
54. $9x^2+20=189$	55. $0=49x^2-16$

Solve by completing the square.

56. $x^2+10x=-21$	57. $-x^2+6x-3=0$

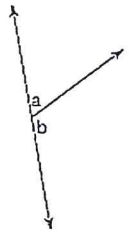
Solve using the Quadratic Formula.

58. $x^2+7x-6=0$

59. $2x^2-x-11=0$

Name the relationship(s): complementary, supplementary, vertical, or adjacent.

60.



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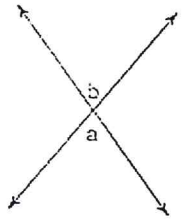

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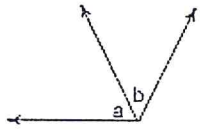

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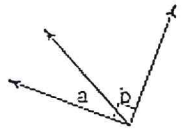

Find the measure of angle *b*.

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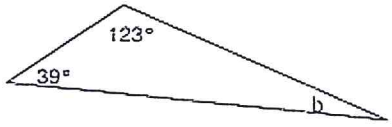

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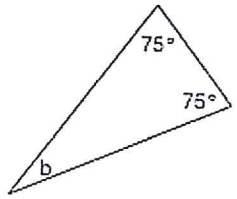

Find the perimeter of each figure.

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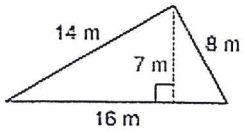

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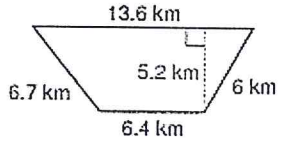

Find the area of each figure.

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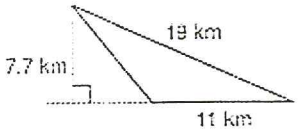

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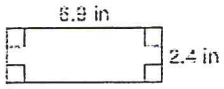

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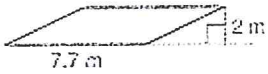

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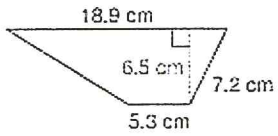

Find the area and circumference of each circle.

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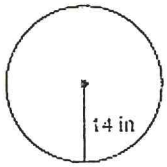

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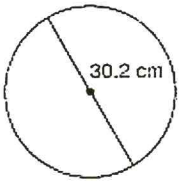

Use the Pythagorean Theorem to find the missing length.

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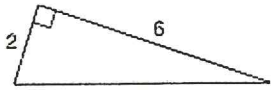

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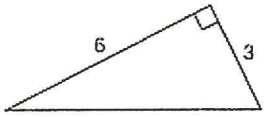

The polygons in each pair are similar. Find the scale factor of the smaller figure to the larger figure.

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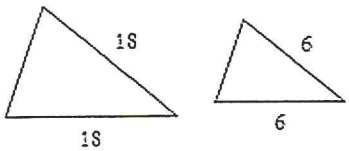

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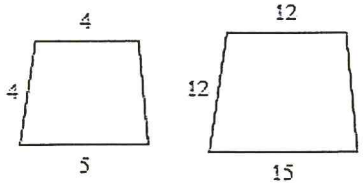

Find the volume of each figure – see formulas below.

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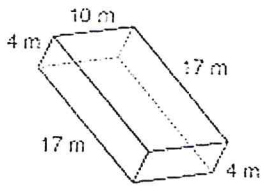

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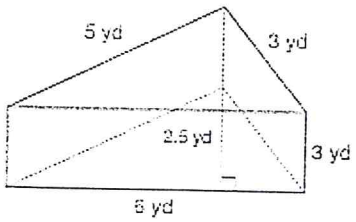

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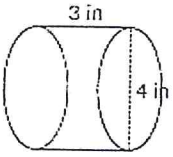

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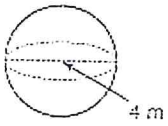

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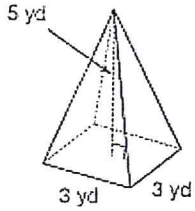

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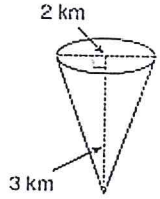

Volume Formulas		
Prism $V = Bh$	**Pyramid** $V = \frac{1}{3}Bh$	**Cylinder** $V = \pi r^2 h$
Cube $V = s^3$	**Cone** $V = \frac{1}{3}\pi r^2 h$	**Sphere** $V = \frac{4}{3}\pi r^3$