Geometry Summer Packet For Incoming HHS9 Students:

The Geometry Team from HHS9 has determined there are 6 areas of Algebra I and 8th Grade Math Skills that are vital for a student to be successful in High School Geometry.   To ensure that every student is fully prepared to enter the rigor of a high school math class, we are assigning **every Middle School Algebra I student** the task of completing this packet over the summer.

*Students: **a grade will be taken on the completion of this packet during your first week of Geometry at HHS9**. You must show all work written neatly for every problem. You may do the work on another paper, but it much be attached when turning in the assignment. **All Geometry students will be given a Major Grade Test over the contents of this Packet on Friday your first week in Geometry**. Please make it a personal goal to get off to a great start in this class by working through the packet and using the videos for review.

We look forward to having you in our classes next year!!

Sincerely,

The HHS9 Geometry Team

Mrs. Barger - Coach Essary - Ms. Keys

Videos to Help Prepare for HS Geometry

Topic 1: Solving Equations

1. Solve equations with variables on both sides
   https://www.khanacademy.org/math/in-eighth-grade-math/linear-equations-one-variable/solving-equations-variable-both-sides/v/multi-step-equations-1

2. Solve equations with fractions
   https://www.youtube.com/watch?v=10TJfOy3H-w

3. Solve multi-step equations
   http://mathvids.com/lesson/mathhelp/84-solving-multi-step-equations

Topic 2: Factoring Polynomials

There are many different methods of factoring. Students will come to HHS9 from 3 different Middle Schools. I have listed several methods below to help you review factoring. I hope that at least one method looks familiar to you.

1. Factor using the AC Method
   https://youtu.be/AYkaCZUT4O4

2. Factor using the Box Method
   https://youtu.be/YFf7oDJp1pQ

3. Factor using the X Method
   https://youtu.be/aSMSIZZ0uR4

4. Factoring Special Products
   https://youtu.be/_J7vn-_ekPM

Topic 3: Solving Quadratics

1. Solve by Factoring

    https://www.sophia.org/tutorials/solving-quadratics-by-factoring-4

    https://www.khanacademy.org/math/algebra-basics/quadratics-polynomials-topic/solving-quadratics-factoring/v/example-1-solving-a-quadratic-equation-by-factoring

2. Solve using the Quadratic Formula

    https://www.sophia.org/tutorials/the-quadratic-formula--11

    https://www.khanacademy.org/math/algebra/quadratics/solving-quadratics-using-the-quadratic-formula/v/using-the-quadratic-formula

Topic 4: Solving Systems of Equations

1. Solve SOE by Substitution
    http://www.teachertube.com/video/solving-systems-by-substitution-242476

2. Solve SOE by Elimination

    http://www.teachertube.com/video/solving-systems-of-equations-by-elimination-277735

    https://www.sophia.org/tutorials/solving-systems-of-equations-by-elimination--2

Topic 5: Simplifying & Multiplying Radicals

1. Simplifying Radicals

    https://www.educreations.com/lesson/view/simplifying-radicals-using-factor-trees/2603284/

2. Multiplying Radicals

    http://www.virtualnerd.com/algebra-1/radical-expressions-equations/simplify/multiply-divide/multiplication-example

Topic 6: Finding Area, Surface Area and Volumes

http://www.virtualnerd.com/geometry/surface-area-volume-solid/pyramids-codes-area/regular-pyramid-lateral-surface-areas

Topic 1: Solving Equations

Solve the following equations that have variables on both sides:

1. $6r + 7 = 13 + 7r$

2. $5 + 2x = 2x + 6$

3. $-7x - 3x + 2 = -8x - 8$

4. $-8n + 4(1+5n) = -6n - 14$

5. $-14 + 6b + 7 - 2b = 1 + 5b$

6. $4n - 40 = 7(-2n + 2)$

7. $n - 3n = 14 - 4n$

8. $-31 - 4x = -5 - 5(1 + 5x)$

Solve the following equations with fractions:

1. $\dfrac{3}{4}t = \dfrac{2}{3}$

2. $y - \dfrac{2}{5} = -\dfrac{1}{3}$

3. $\dfrac{2}{3} = -\dfrac{3}{5}t$

4. $\dfrac{1}{4} + \dfrac{1}{2}t = 4$

5. $\dfrac{3}{4}x = \dfrac{1}{2}$

6. $\dfrac{1}{4}x + x = -3 + \dfrac{1}{2}x$

7. $\dfrac{-5}{6}x = \dfrac{3}{4}$

8. $\dfrac{1}{3} + 2m = m - \dfrac{3}{2}$

9. $2y - \dfrac{3}{5} = \dfrac{1}{2}$

10. $m + \dfrac{2}{3} = \dfrac{1}{4}m - 1$

Solve the following multi-step equations:

1. $6(3m + 5) = 66$

2. $3p - 4 = 31$

3. $3(4y - 8) = 12$

4. $x - 2(x + 10) = 12$

5. $-5(x - 3) = -25$

6. $-15 = 5(3q - 10) - 5q$

7. $42 = 3(2 - 3h)$

8. $-3 = -3(2t - 1)$

9. $-10 = 5(2w - 4)$

10. $11.3 - 7.2f = -3.82$

Topic 2: Factoring Polynomials

Factor the polynomials below completely:

1. $x^2 + 5x + 6$

2. $x^2 - 2x - 3$

3. $x^2 - 5x$

4. $x^2 - 4$

5. $2x^2 - 18x - 72$

6. $x^2 - 12x - 28$

7. $4x^2 - 20x + 25$

8. $24x^2 - 6$

9. $2x^2 - x - 3$

10. $8x^2 - 10x - 3$

8. $2x^2 - 11x + 21$

12. $6x^2 + 26x + 24$

Topic 3: Solving Quadratics

Solve the following quadratics by factoring:

1. $x^2 - 11x + 19 = -5$

2. $n^2 + 7n + 15 = 5$

3. $n^2 + 3n - 12 = 6$

4. $9x^2 - 24x + 16 = 0$

5. $7r^2 - 14r = -7$

6. $2x^2 - 3x - 2 = 0$

Solve the following quadratic equations using the Quadratic Formula:

1. $6x^2 + 11x - 35 = 0$

2. $f^2 + 9f + 4 = 0$

3. $m^2 - 3m - 1 = 0$

4. $3x^2 + 8x + 2 = 0$

5. $4t^2 - 9t + 1 = 0$

6. $3w^2 + 8w + 3 = 0$

Topic 4: Solving Systems of Equations

Solve the following Systems of Equations Using Substitution:

1. 2x – 9y = 14
    x – 7 = -6y

2. -5x + 2y =9
    y – 7x = 0

3. 3x + 4y = -23
    x – 3y = 1

4. x + 3y = 25
    4x + 5y = 9

5. -5x + y = -2
    -3x + 6y = -12

6. -7x – 2y = -13
    x – 2y = 11

Solve the following Systems of Equations by Elimination:

1. $-5x + 8y = 0$
   $-7x - 8y = -96$

2. $-7y - 4x = 1$
   $7y - 2x = 53$

3. $x - 2y = 14$
   $x + 3y = 9$

4. $8y - 9x = -3$
   $5y - 8x = 10$

5. $-5y + 6x = 40$
   $3y - 8x = -46$

6. $-9y + 4x - 11 = 0$
   $-3y + 10x + 31 = 0$

Topic 5: Simplifying & Multiplying Radicals

Simplify the following radicals:

1. $\sqrt{60}$

2. $-\sqrt{128}$

3. $5\sqrt{320}$

4. $2\sqrt{45}$

5. $\dfrac{20\sqrt{50}}{4\sqrt{2}}$

6. $\dfrac{\sqrt{21}}{7\sqrt{2}}$

Multiply and then simplify the following radicals:

1. $\sqrt{5} \cdot \sqrt{45}$

2. $(\sqrt{5})^2$

3. $\sqrt{6} \cdot \sqrt{30}$

4. $4(\sqrt{10})^2$

5. $\sqrt{6} \cdot \sqrt{2}$

6. $\sqrt{25} \cdot \sqrt{25}$

Topic 6: Finding Area, Surface Area and Volumes

AREA

Triangle	$A = \frac{1}{2}bh$
Rectangle or Parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$

SURFACE AREA	Lateral	Total
Prism	$S = Ph$	$S = Ph + 2B$
Pyramid	$S = \frac{1}{2}Pl$	$S = \frac{1}{2}Pl + B$
Cylinder	$S = 2\pi rh$	$S = 2\pi rh + 2\pi r^2$

VOLUME

Prism or Cylinder	$V = Bh$
Pyramid or Cone	$V = \frac{1}{3}Bh$

In this section, be sure to write each formula, show the values you substitute in, and then write your answer with units of measure.]
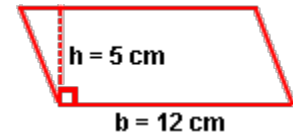
1. Find the area of the triangle.

www.mathwarehouse.com
2.5
12

2. Find the area of the triangle.
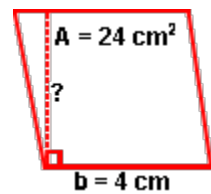

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14
5.9   6
12
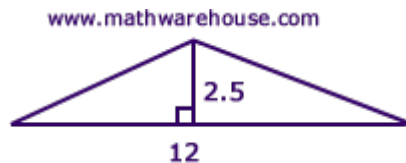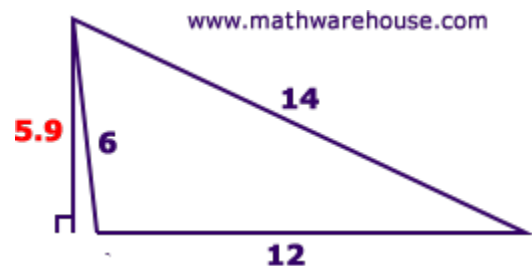
3. The perimeter of a rectangle is 20 centimeters. The length is 6 centimeters. What is the area of the rectangle? Be sure to draw and label a diagram.
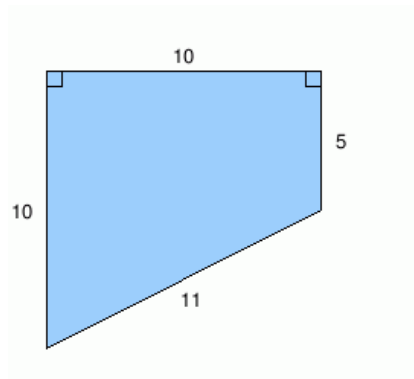
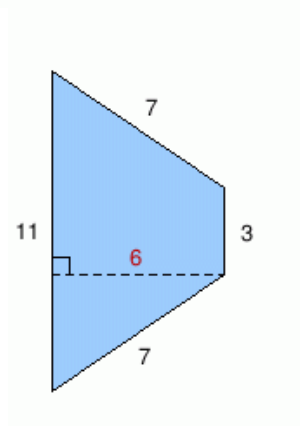4. Find the area of the parallelogram.

h = 5 cm
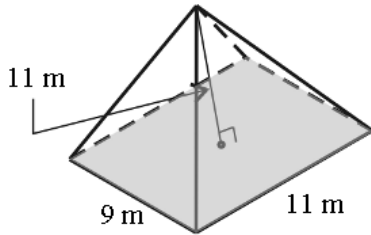
b = 12 cm

5. Find the height of the parallelogram.

A = 24 cm²

?

b = 4 cm

6. Find the area of the trapezoid.

10

10

5

11

7. Find the area of the trapezoid.

7

11

3

6

7

8. Find the volume of the pyramid. The base is rectangular.

11 m

9 m   11 m

9. A cylinder has a radius of 13 cm and a height of 22 cm. Find the surface area and volume.

13

22 cm
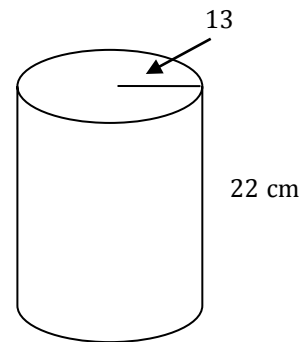
10. Find the surface area and volume of the triangular prism below.

10 in.

10 in.

24 in.

6 in.