

Welcome to Geometry Honors!

This is a summer enrichment packet for all students enrolled in Geometry Honors at Thoreau Middle School for the upcoming school year. This packet contains concepts that were taught in Algebra 1 Honors. It is important that you know and understand these concepts, as we will build on them in Geometry. **Be sure to show ALL of your work!**

**Purpose:** Summer enrichment opportunities can provide students access to review and support meaningful learning experiences aligned to course objectives.

The purpose of optional summer enrichment might be to

- activate students' background knowledge and skills
- provide opportunity to review introductory topics/prerequisites for the course
- create or enhance enthusiasm and interest in a subject or to serve as a springboard for future learning.

Please spend some time this summer keeping these skills and concepts fresh in your mind.

Have a great summer and see you in August!

From, The Geometry Honors

Teachers

### **Show all supporting work**

#### **Section 1 - Factoring**

1.  $x^2 - 6x - 27$

2.  $3x^2 + 8x - 16$

3.  $2x^1 - 32$

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1.  $-\sqrt{\quad}$       $\sqrt{\quad}$       $14 \cdot 140 \cdot 2 \cdot 35$

4.  $10x^2 + x - 12$

### Section 2 - Simplifying Radical Expressions

Simplify each radical expression completely. Leave no perfect square in the radicand.

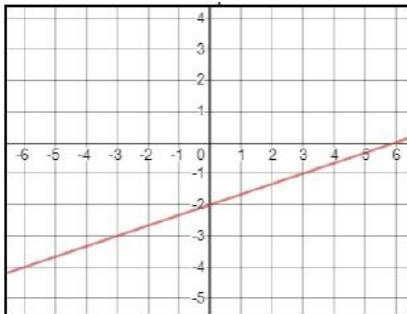
1.  $\sqrt{588x^{16}y^9}$

2.  $\sqrt[3]{1800a^6b^{21}}$

3.  $\sqrt{145x^{75}}$

### Section 3 - Forms of a Line/Parallel and Perpendicular Lines

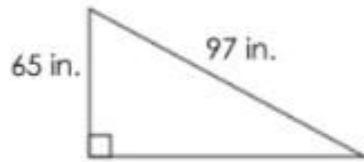
1. Write the equations of a line in slope-intercept form that goes through the points (3, -5) and (-2, 15).
2. Write the equation of a line in point-slope form that goes through the points (14, -1) and (12, -5). Use the first point in your final equation.
3. Write the equation of the line shown on the coordinate plane in standard form.



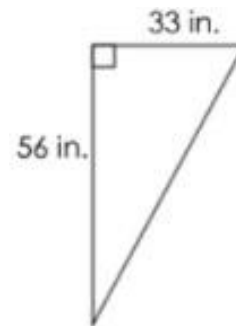
- Write the equation of a line in slope-intercept form that is parallel to  $6x - 4y = 12$  and goes through the point  $(8, 24)$ .
- Write the equation of a line in point-slope form that is perpendicular to  $y = 7x - 5$  and goes through the point  $(-3, 6)$ .

#### Section 4 -Pythagorean Theorem

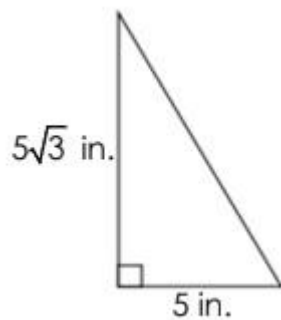
- Prove whether or not the following lengths will form a right triangle:  
 $\{9 \text{ cm}, 15 \text{ cm}, 12 \text{ cm}\}$
- Identify the length of the missing side of the right triangles. If the answer is not a rational number, leave your answer in simplified radical form.



a.



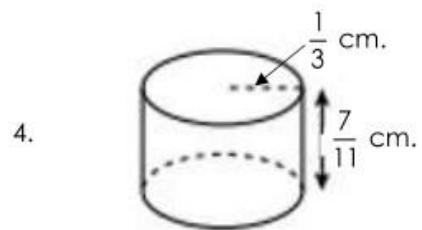
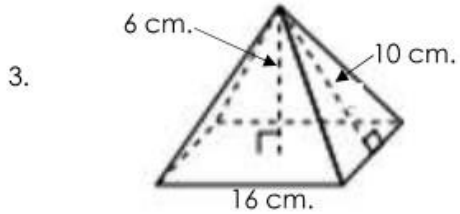
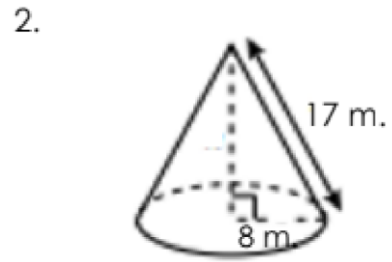
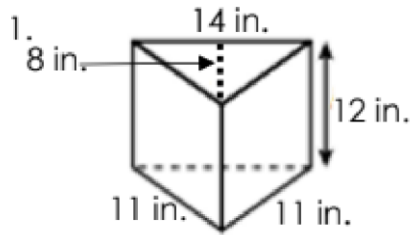
b.



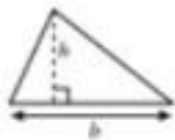
c.

**Section 5 - Surface Area and Volume of Solids (formula sheet follows)**

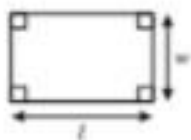
Calculate the Surface Area and Volume of each solid.



(Question #4: Answer as a simplified fraction  
Use  $\frac{22}{7}$  for  $\pi$ )

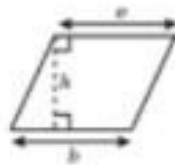


$$A = \frac{1}{2}bh$$

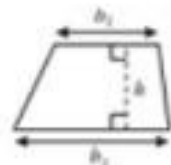


$$p = 2l + 2w$$

$$A = lw$$



$$A = bh$$



$$A = \frac{1}{2}h(b_1 + b_2)$$

### Regular Hexagon



$$A = \frac{3\sqrt{3}}{2}s^2$$

$$A = \frac{1}{2}pa$$



$$C = 2\pi r$$

$$C = \pi d$$

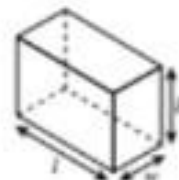
$$A = \pi r^2$$



$$V = Bh$$

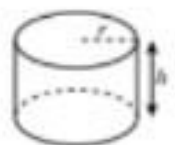
$$L.A. = hp$$

$$S.A. = hp + 2B$$



$$V = lwh$$

$$S.A. = 2lw + 2lh + 2wh$$



$$V = \pi r^2 h$$

$$L.A. = 2\pi rh$$

$$S.A. = 2\pi r^2 + 2\pi rh$$



$$V = \frac{4}{3}\pi r^3$$

$$S.A. = 4\pi r^2$$



$$V = \frac{1}{3}\pi r^2 h$$

$$L.A. = \pi rl$$

$$S.A. = \pi r^2 + \pi rl$$



$$V = \frac{1}{3}Bh$$

$$L.A. = \frac{1}{2}lp$$

$$S.A. = \frac{1}{2}lp + B$$