

Name:

ATEMS Honors Geometry

2022 Summer Packet

At ATEMS, the Honors program is designed for motivated students that plan on taking AP classes and going to college after high school. At this level, both independent and collaborative work is required through various activities and projects. In order to be prepared for this class, you need to complete this packet to review skills learned in middle school math classes and Algebra 1. You are expected to know and understand these concepts the first day of class.

Assignment Specifications:

- Due the fourth day of class for a daily grade (Monday, August 22nd)
- Completed neatly and legibly - if it can't be read, it can't be graded
- Show all work and thinking
- If you need extra work space, use notebook paper and staple it to the back
- Any work on notebook paper must be neatly labeled according to the problem number
- An assessment over this material will be given the fifth day of class (Tuesday, August 23rd)

If you have questions over this packet, you can email me (taylor.claxton@abileneisd.org). Please include the problem you need help with and your full name in the email. Here are some additional resources for help and extra practice as well:

- <http://patrickjmt.com/>
- <https://www.khanacademy.org/>
- <https://www.youtube.com/>
- <http://virtualnerd.com/algebra-1/all/>
- <https://www.mathsisfun.com/algebra/index.html>
- <https://www.mathwarehouse.com/>
- <https://www.mathbits.com/>
- <https://www.themathpage.com/>
- <https://www.mathplanet.com/>

I hope you have a fantastic summer break! I look forward to meeting each of you in August.

Sincerely,



Mrs. Claxton

ATEMS Geometry Teacher

Simplify the following expressions.

1. $(-4 + 2)(-2 + 5)^2$

2. $(8 - 5)^2 + [9 - (-3)]^2$

3. $\frac{8}{(6-2)+5}$

4. $\frac{18}{36a}$

5. $\frac{-18r^3t}{12rt}$

6. $\frac{5a+5b}{a^2-b^2}$

7. $\frac{7}{9} - \frac{1}{3}$

8. $\frac{6}{7} \times \frac{1}{3}$

9. $\frac{1}{3} \div \frac{3}{4}$

Solve the following equations for the missing variable (assume x is positive). Round answers to the nearest hundredth if necessary.

10. $180 - x = 3(90 - x)$

11. $\frac{1}{2}(6 + 4x) - \frac{1}{4}(8x - 12) = \frac{1}{2}(2x - 4)$

12. $24 = \frac{5}{8}x + 4$

13. $x^2 + 3^2 = 4^2$

14. $x^2 + (7\sqrt{3})^2 = (2x)^2$

15. $4^2 + 7^2 = x^2$

Solve each proportion. Round answers to the nearest hundredth if necessary.

16. $\frac{4}{x-3} = \frac{6}{x+3}$

17. $\frac{7}{2} = \frac{y}{3}$

18. $\frac{2}{a-3} = \frac{a-2}{6}$

Factor and solve for x. Round answers to the nearest hundredth if necessary.

19. $x^2 + 5x - 6 = 0$

20. $x^2 = 20x - 36$

21. $4x^2 + 15 = 17x$

Solve the formulas for the indicated variable.

22. $P = 2(a + b)$, solve for b

23. $A = l \times w$, solve for l

24. $A = \frac{1}{2}aP$, solve for a

25. $V = \frac{1}{3}Bh$, solve for B

Simplify the radicals. Give an exact answer with a radical if needed. No decimals answers.

26. $\sqrt{24}$

27. $\sqrt{\frac{80}{25}}$

28. $4\sqrt{27}$

29. $\frac{2\sqrt{13}}{\sqrt{12}}$

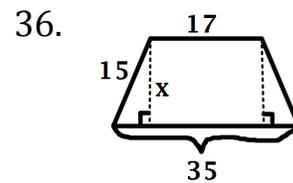
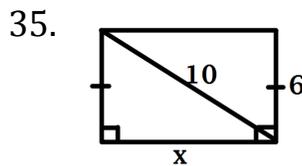
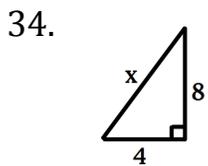
30. $\sqrt{432}$

31. $\sqrt{216}$

32. $\sqrt{3000}$

33. $\sqrt{120}$

Use the Pythagorean Theorem to solve for the missing lengths in the figures below. Give an exact answer with a radical if needed. No decimal answers.



Find the following slopes using the coordinates below. No decimal answers. Use simplified fractions as needed.

37. $(-2, 3)$ and $(1, -3)$

Slope:

Parallel Slope:

Perpendicular Slope:

38. $(-3, -5)$ and $(-3, -1)$

Slope:

Parallel Slope:

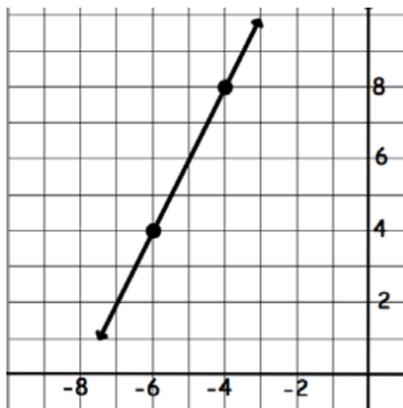
Perpendicular Slope:

Write the equations of the lines with the information given below. No decimal answers.
Use fractions as needed.

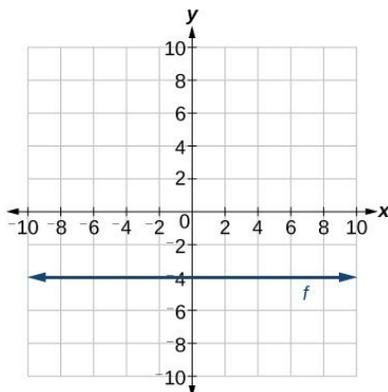
39. The line passes through $(9, 3)$ and has a slope of -4 .

40. The line passes through $(-5, 9)$ and $(4, 7)$.

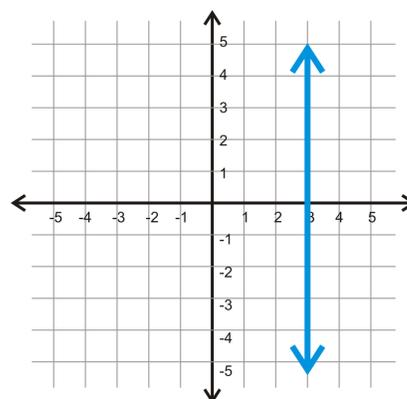
41. The line passes through $(1, 2)$ and is parallel to the line on the graph.



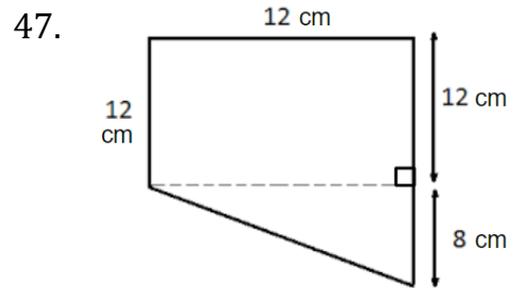
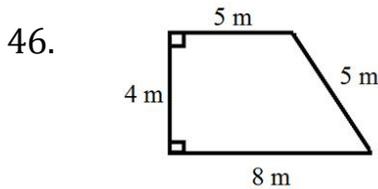
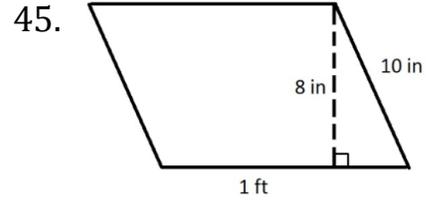
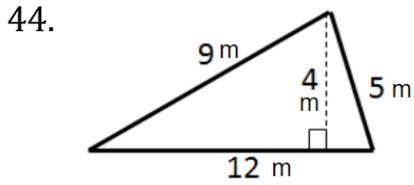
42. The horizontal line below.



43. The vertical line below.



Find the perimeter and area of the polygons below. Round to the nearest hundredth if necessary and be sure to include units.



Find the circumference and area of the circles below; round to the nearest hundredth if necessary and be sure to include units:

