



**Cedar Grove High School  
Mathematics Department**

*Summer Skills Packet*

**Algebra II Honors**

*This packet is to be handed in on the first day of school. A diagnostic assessment of this material will take place within the first week of the new school year.*

This assignment is for students ENTERING Algebra II HONORS.

Name \_\_\_\_\_

## Welcome to Algebra II Honors!

The following websites will be useful to you in completing the assignment and preparing to learn new material come September.

[www.khanacademy.com](http://www.khanacademy.com)

[www.ixl.com](http://www.ixl.com)

[www.tenmarks.com](http://www.tenmarks.com)

[www.purplemath.com/modules/index.htm](http://www.purplemath.com/modules/index.htm)

[www.algebrahelp.com/](http://www.algebrahelp.com/)

[www.math.com/homeworkhelp/Algebra.html](http://www.math.com/homeworkhelp/Algebra.html)

[www.edhelper.com/algebra.htm](http://www.edhelper.com/algebra.htm)

[www.coolmath.com/algebra/](http://www.coolmath.com/algebra/)

The following is a list of the Algebraic concepts that you must have mastered, and are included on this quiz:

- Rational and Irrational Numbers
- Algebraic Expressions
- Linear Equations
- Solving Linear Inequalities
- Representing Equations and Inequalities
- Interpret functions
- Translate functions
- Analyzing Linear Functions

Attached is a take-home summer skills packet. This quiz is filled with material that you should have previously covered in Algebra I and Geometry. If there are things you come across that you do not understand, please take the time to look them up. You are expected to begin the school year with a **mastery** of these concepts.

Complete this summer assignment to the best of your ability before school begins. Please put your responses on the provided answer sheet, but show all work in the packet. This packet will be **graded on completion**, and **you will have an assessment during the first week of school** based on the material in the packet. You may use a calculator if you wish. The TI-83 Plus is the calculator you need for math class. If you have (or wish to purchase) the TI-84 or TI-84-SE, these are also fine. Good Luck!

Also, by the first week of school you will absolutely need:

- 3-ring binder (at least 1.5")
- plenty of lined paper
- a graphing calculator (TI-83 Plus or higher)
- pencils

You may contact me over the summer at [stanford.milissa@cgschools.org](mailto:stanford.milissa@cgschools.org) if you have any questions.

Name \_\_\_\_\_

Summer Assignment

Date \_\_\_\_\_

Algebra II Honors

*For full credit, you must show all work. Additionally, please put all of your answers on the answer sheet provided.*

*Simplify each expression. Leave answers as fractions (proper or improper) and simplest radical form (when necessary).*

1.  $2^4 \cdot 3 + 16 \div 4$

2.  $\frac{2}{3} + \frac{5}{3} \cdot \frac{1}{3}$

3.  $-w^3 + w^2 - 7w^2 - 8w^3$

4.  $-7(t^2 + 2) + 9(t - 2)$

5.  $\frac{\frac{1+2}{2+3}}{\frac{5}{6}}$

6.  $-4^2 + 12$

7.  $(2x - 3)^2$

8.  $(x + 2)^2 - 4$

9.  $\frac{1}{4}(x^2 - 4) + x$

10.  $3|-9 + 2| - 2 \cdot 6$

11.  $\sqrt{\frac{9}{25}}$

12.  $\sqrt{40}$

13.  $\sqrt{300}$

14.  $\sqrt{27}$

15.  $\frac{10}{\sqrt{2}}$

16.  $\frac{\sqrt{5}}{\sqrt{8}}$

*Factor the following.*

17.  $a^2 - 15a - 54$

18.  $-3b^2 - 22b - 7$

19.  $4x^2 - 16$

20.  $p^2(p - 5) + 9(5 - p)$

*Solve the following equations.*

21.  $(x + 7)(x - 3) = 0$

22.  $9x^2 - 28x + 3 = 0$

23.  $8x^2 + 7 = 36x - 9$

24.  $\sqrt{x + 8} + 10 = 2$

25.  $-8x + 15 + 5x = 9$

26.  $5(2x - 3) = 4x$

27.  $\frac{3x+7}{4} - 6 = 10$

28.  $\frac{x-5}{7} = \frac{x-7}{9}$

$$29. 4x^2 = 16$$

$$30. \frac{7}{2}y + 5 = 8$$

Find the following measurements.

31. A guy wire supports an antenna tower, as shown below. The bottom of the wire is secured in the ground 30 feet from the base of the tower. The top of the wire is secured to the tower at a height of 30 feet above the ground. How long is the guy wire? Round your answer to the nearest tenth of a foot.

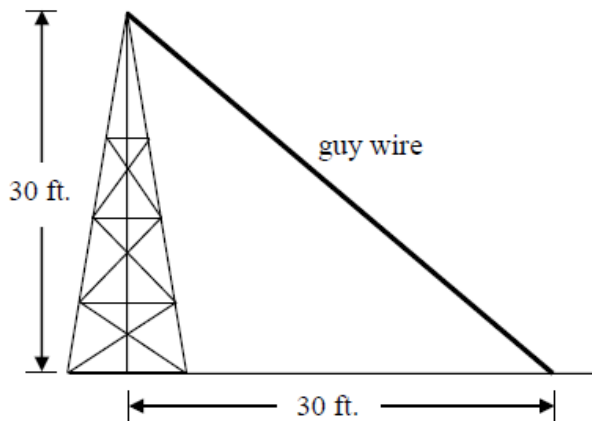


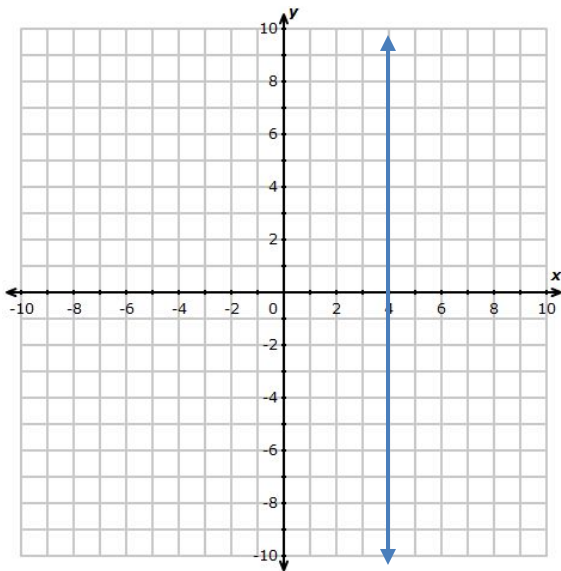
Figure NOT drawn to scale

32. To measure the angle of elevation to the top of a 16 foot tree, you stand 10 feet away from it. What is the angle of elevation to the nearest tenth of a degree?

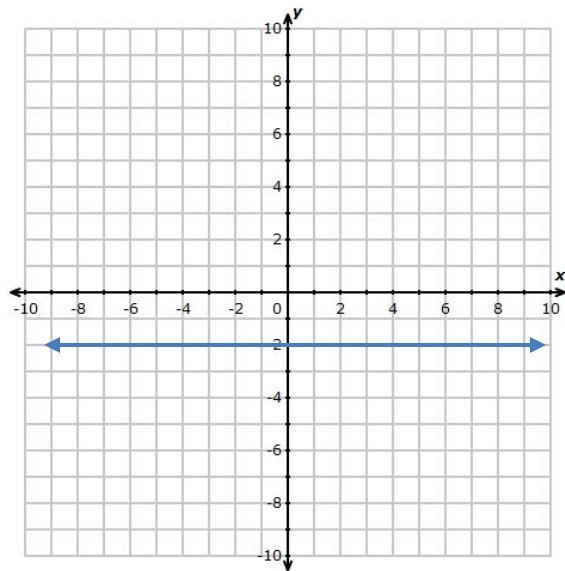
33. You want to measure the height of a mountain. You are at an unknown distance from a mountain. The angle of elevation to the top of the mountain is  $65^\circ$ . You step back 100 yards and measure the angle of elevation to be  $60^\circ$ . Find the height of the mountain and your original distance from the mountain.

For #26-28, name the equation that is graphed and identify the  $x$ - and  $y$ -intercepts.

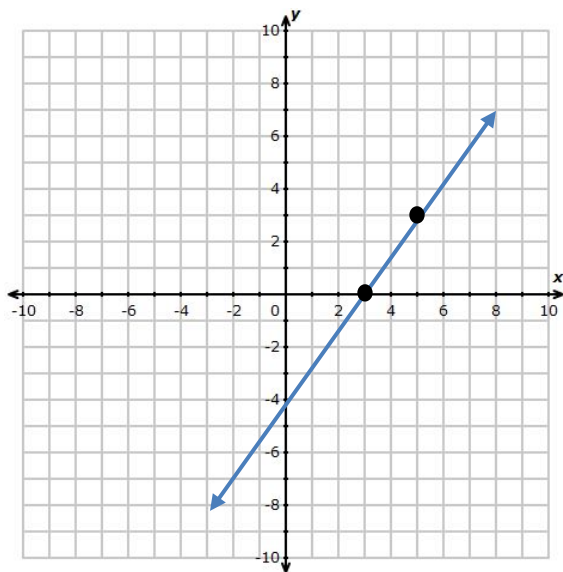
34.



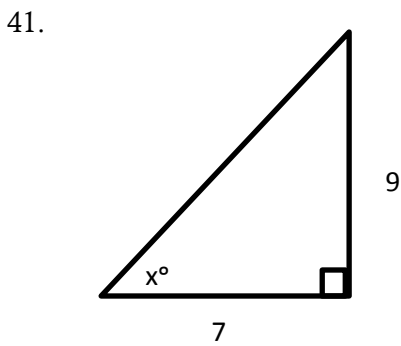
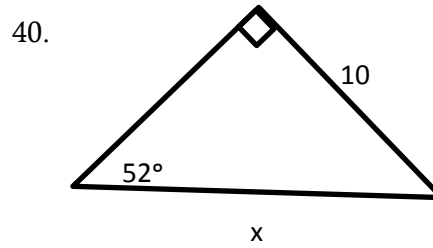
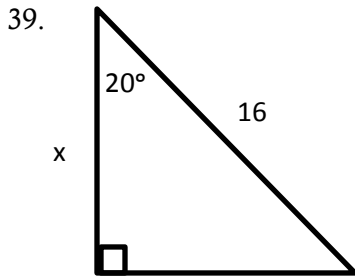
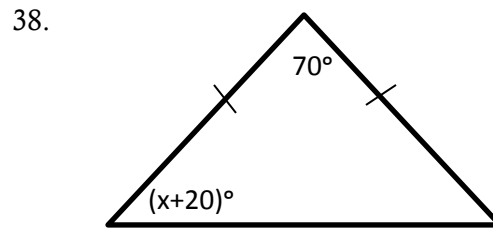
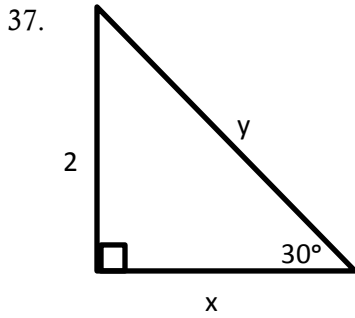
35.



36.



For #29-33, find the value of each variable in the triangles.



42. The height of a ball flying through the air is given by a function in terms of time as follows:

$$h(t) = -16t^2 + 96t + 200, \text{ where } h \text{ is in feet and } t \text{ is in seconds.}$$

a. How high will the ball be after 5 seconds?

b. How long will it take for the ball to be 344 feet in the air?

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**Answer Sheet**

*Please write all of the responses to the questions on the summer assignment in the appropriate spaces. All work should be shown in the packet underneath each question, or on a separate sheet of paper (attached).*

1. \_\_\_\_\_

21. \_\_\_\_\_

37. x: \_\_\_\_\_ y: \_\_\_\_\_

2. \_\_\_\_\_

22. \_\_\_\_\_

38. \_\_\_\_\_

3. \_\_\_\_\_

23. \_\_\_\_\_

39. \_\_\_\_\_

4. \_\_\_\_\_

24. \_\_\_\_\_

40. \_\_\_\_\_

5. \_\_\_\_\_

25. \_\_\_\_\_

41. \_\_\_\_\_

6. \_\_\_\_\_

26. \_\_\_\_\_

42. a: \_\_\_\_\_

7. \_\_\_\_\_

27. \_\_\_\_\_

b: \_\_\_\_\_

8. \_\_\_\_\_

28. \_\_\_\_\_

9. \_\_\_\_\_

29. \_\_\_\_\_

10. \_\_\_\_\_

30. \_\_\_\_\_

11. \_\_\_\_\_

31. \_\_\_\_\_

12. \_\_\_\_\_

32. \_\_\_\_\_

13. \_\_\_\_\_

33. \_\_\_\_\_

14. \_\_\_\_\_

34. Equation: \_\_\_\_\_

15. \_\_\_\_\_

x-int: \_\_\_\_\_

16. \_\_\_\_\_

y-int: \_\_\_\_\_

17. \_\_\_\_\_

35. Equation: \_\_\_\_\_

18. \_\_\_\_\_

x-int: \_\_\_\_\_

19. \_\_\_\_\_

y-int: \_\_\_\_\_

20. \_\_\_\_\_

36. Equation: \_\_\_\_\_

x-int: \_\_\_\_\_

y-int: \_\_\_\_\_