



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

www.ixl.com

www.tenmarks.com

www.purplemath.com/modules/index.htm

www.algebrahelp.com/

www.math.com/homeworkhelp/Algebra.html

www.edhelper.com/algebra.htm

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 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.

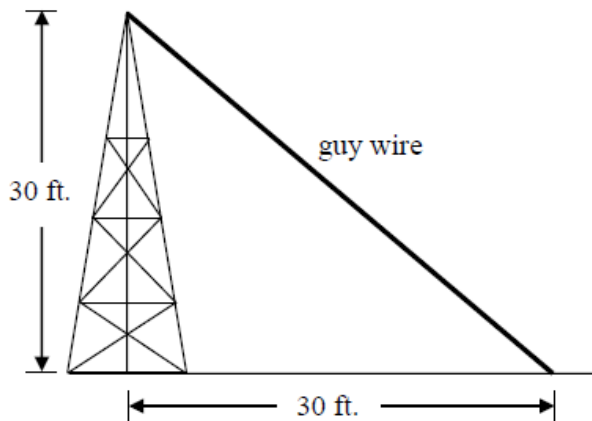


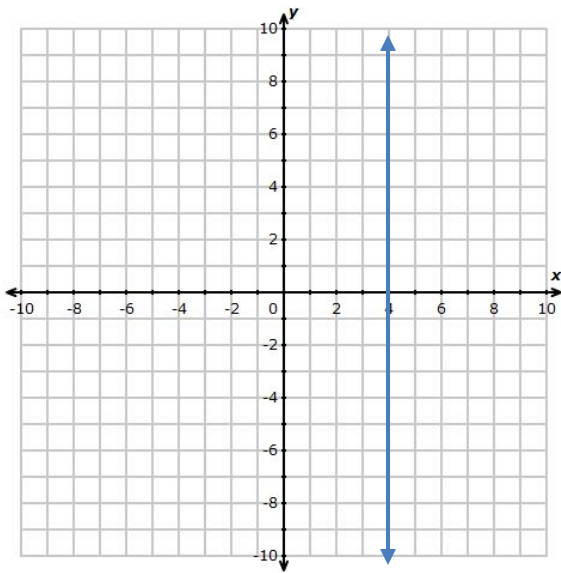
Figure NOT drawn to scale

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?

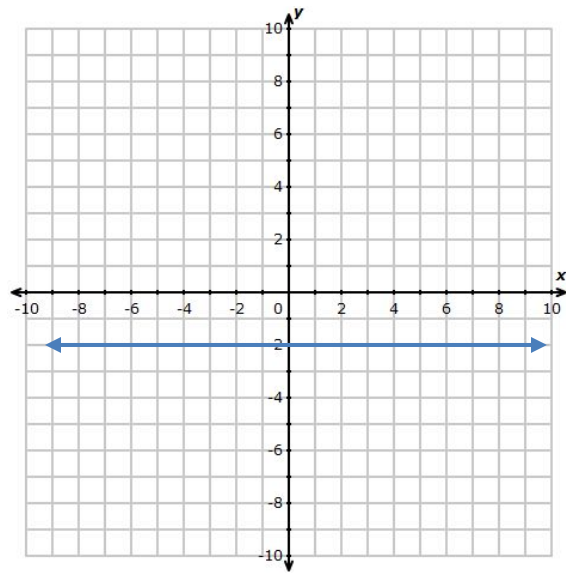
33. You want to measure the height of a mountain. You are at an unknown distance from a mountain. The angle of elevation to the top of the mountain is 65° . You step back 100 yards and measure the angle of elevation to be 60° . Find the height of the mountain and your original distance from the mountain.

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

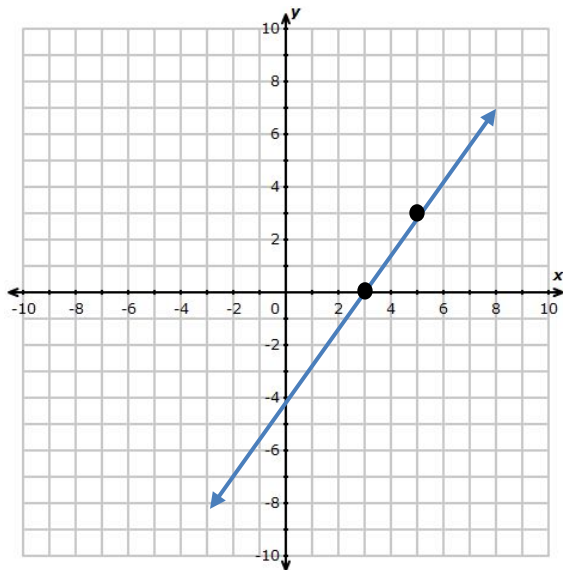
34.



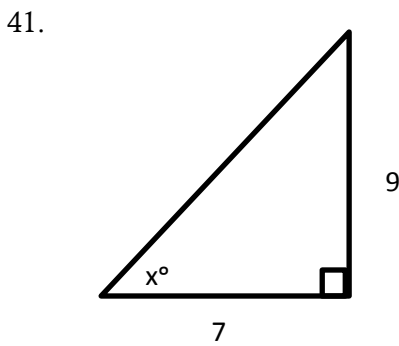
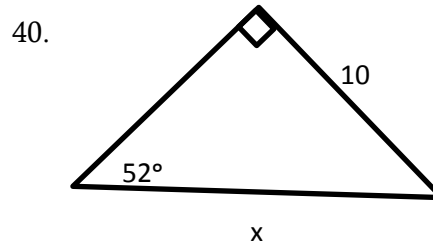
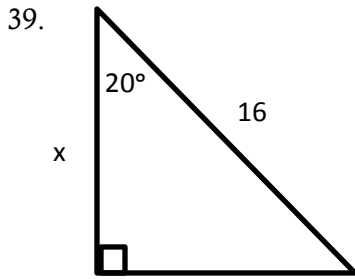
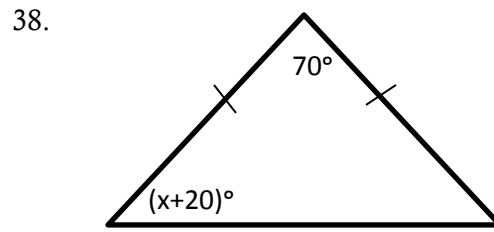
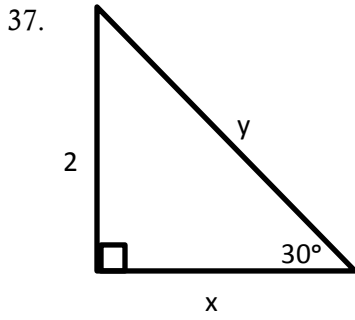
35.



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 10 seconds?

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

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Algebra II Honors

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: _____