Cedar Grove High School
Mathematics Department

Summer Skills Packet

Algebra II

This packet is intended for students who are ENTERING
any level of Algebra II in September
and took Geometry as an 9th grader or 10th grader.

Any questions or concerns may be directed to our Math/Science Supervisor

Janine Barboza at barboza.janine@cgschools.org.

Algebra II Honors

Welcome to Algebra II Honors!

The following websites will be useful to you in completely 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.

Name _____ Summer Assignment

Date _____ Algebra II

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

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.

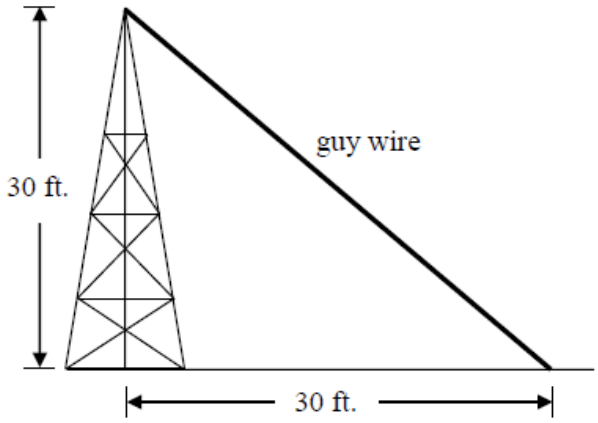


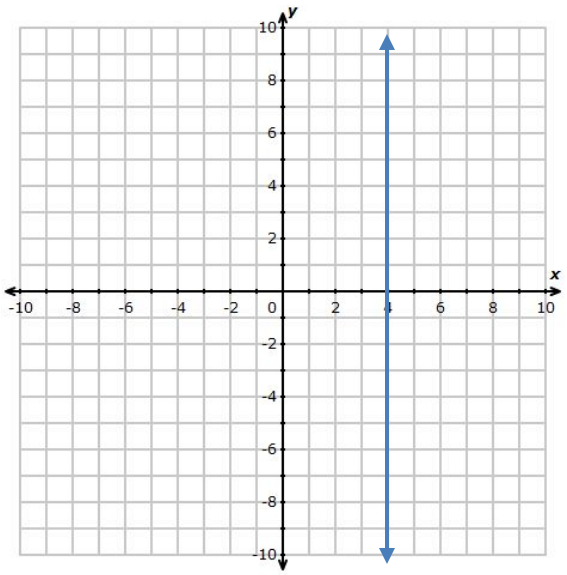
Figure NOT drawn to scale

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.



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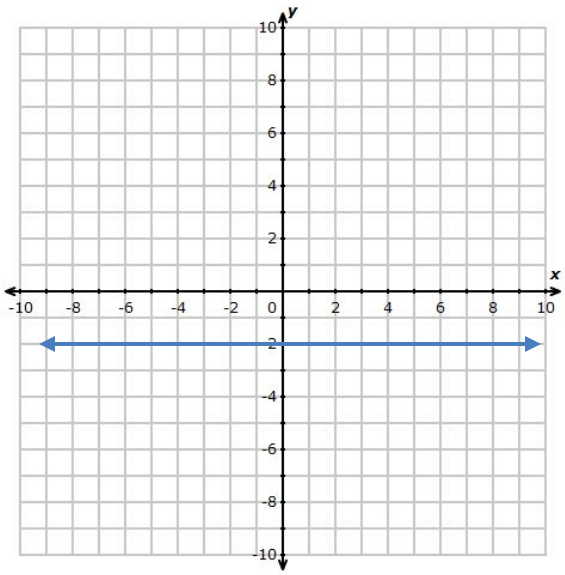

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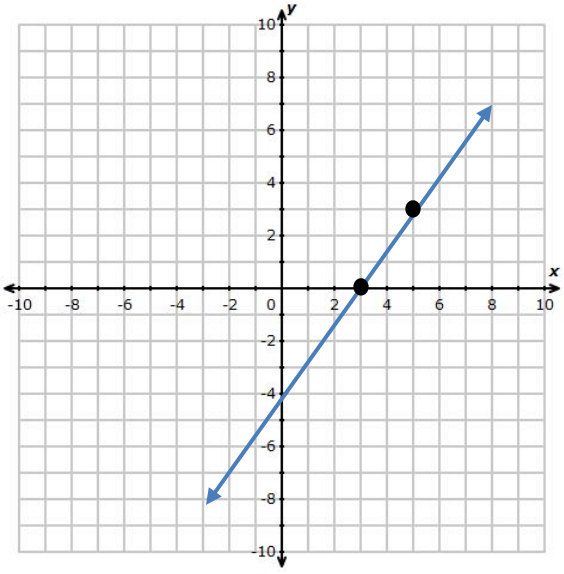
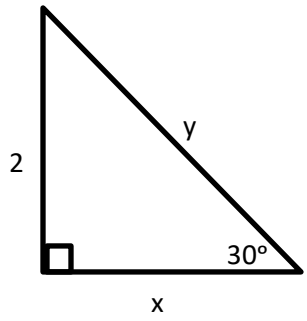


For #29-33, find the value of each variable in the triangles.

37.



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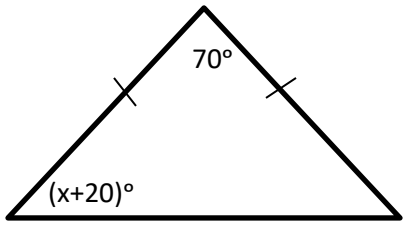

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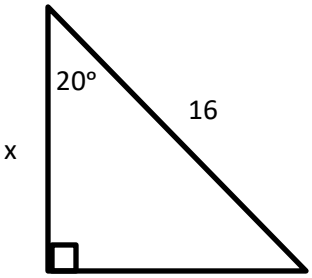

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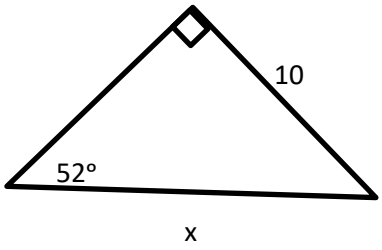
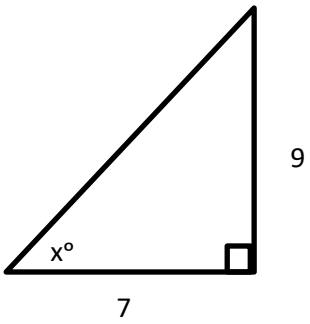


41.



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

$h(t) = -16t^2 + 96t + 200$, where h is in feet and t 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?

Name _____ Summer Assignment

Date _____ 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. _____
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34. Equation: _____
    x-int: _____
    y-int: _____
35. Equation: _____
    x-int: _____
    y-int: _____
36. Equation: _____
    x-int: _____
    y-int: _____
37. x:_____ y:_____
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41. _____
42. a: _____
    b: _____