

Algebra I/Geometry Honors Summer Packet

We are so excited to have you in our Algebra I/Geometry Honors course next year at Cherry Creek High School, but it is critical that you come in with certain fundamental skills so that you are prepared for the pace and rigor of the course. **You should NOT use a calculator on any of these problems. Make sure to show ALL work for every problem.** As such, we have created this summer packet with accompanying videos of various skills that are crucial to your success in this course. We encourage you to attempt the worksheets first utilizing skills you have learned in previous courses, check your answers against the keys, and then utilize the videos for refreshers/support on topics that you may not feel strong on.

This course will progress at a much quicker pace and hit a greater level of depth than what you are used to, so it is crucial that you complete this packet with fidelity and earnest effort to make sure you are best prepared for success when entering the course.

Keep track of any problems that you are struggling with and be ready to ask for support on these topics from your teacher when the school year starts.

There will be a Summer Packet Quiz in the first week of school covering these prerequisite topics to ensure that you have all the necessary fundamentals before we dive into new content.

This packet, completed in its entirety, will be due the second day of school.

We hope you have a wonderful and restful summer with plenty of time for all your favorite activities. Be ready to hit the ground running once school does start in August.

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This QR code links to a helpful website that has the solutions to these worksheets. It also has some helpful videos going over some of these skills to help you brush up on anything you need extra support on.

Please make sure to attempt these worksheets on your own **before** accessing the website.



Order of Operations*Evaluate each expression and leave your answer in simplest form.*

1. $3 + 5 \cdot 7$

2. $3(2 + 4) - 2(7 - 1)$

3. $26 - (17 - 8 \div 2)$

4. $12 - 4 \cdot 2 + (-3)^2$

5. $5^2 - 6(2 - (-1))^2$

6. $7^2 - 6(9 - 4) \div 3$

7. $14 + (13 - 6)^2 - 4 \cdot 6$

8. $-3|2 \cdot 8 - 4 \cdot 5| + (16 - 7) \div 3$

9. $\frac{7 \cdot (9 - 3)^2}{12}$

10. $[15(10) - 12(10)] \div 10$

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11. $5(2 - 3^2) + 11 \cdot 3$

12. $3(7 - 2 \cdot 5) + 7$

13. $\frac{15+2(10^2-5 \cdot 11)}{7}$

14. $3 + 12 \div 3(2)$

15. $15 - [8 - (5 - [2 - 7])]$

16. $(12 - 3 \cdot 2)^2 + 11 \cdot 3$

17. $(5^2 - 3) \div (2^3 \div 4)$

18. $3^{(8 \div 4)} \cdot (5 - 3)^2$

Fractions

Simplify the following expressions. All fractions must be reduced completely, but leave final answers as improper fractions (if necessary) rather than mixed numbers (i.e., $\frac{7}{4}$ vs. $1\frac{3}{4}$)

1. $\frac{2}{7} + \frac{3}{7}$

2. $\frac{17}{6} - \frac{1}{6}$

3. $\frac{2}{7} + \frac{3}{7} - (-\frac{6}{7})$

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

5. $\frac{3}{7} - \frac{2}{5}$

6. $\frac{3}{2} + \frac{7}{4} - \frac{1}{12}$

7. $\frac{3}{2} + \frac{4}{3} + \frac{7}{5}$

8. $2\frac{1}{5} + 3\frac{3}{5}$

9. $6\frac{1}{2} + 3\frac{1}{4} - 2\frac{3}{4}$

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10. $\frac{3}{2} \cdot \frac{5}{6}$

11. $\frac{2}{5} + \frac{3}{2} \cdot \frac{7}{5}$

12. $3 \cdot \frac{7}{6}$

13. $-\frac{3}{4} \cdot \frac{1}{9} \cdot \frac{6}{5}$

14. $1\frac{1}{3} \cdot 2\frac{2}{3}$

15. $\frac{3}{7} \div \frac{6}{5}$

16. $\frac{3}{7} \cdot \frac{2}{5} \div \frac{6}{7}$

17. $\frac{2}{3} \cdot \frac{5}{7} + \frac{3}{2} \cdot \frac{4}{7}$

18. $\frac{8}{3} \div \frac{2}{5} + \frac{9}{4}$

Simplifying and Evaluating Expressions*Simplify all expressions completely (making sure to combine any like terms).*

1. $3x + 5x$

2. $2x + 5y - 5x + 7y$

3. $4x + 3 + 7x - 11$

4. $2(3x + 1)$

5. $8 - 2(3x + 1)$

6. $-3(2x + 1) + 2(x - 7)$

7. $(3x^2 + 2x + 7) + (2x^2 + 7x - 1)$

8. $2(3x^2 - 5x + 7) - 3(x^2 - 2x + 1)$

9. $3(2x + 5y) - 7(3x - y) + 2(6x - 3y)$

10. $6(2x + y) - 3(8x - 5y + 1)$

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11. $\frac{1}{3}(6x + 12)$

12. $\frac{1}{2}(6x + 14) - \frac{2}{3}(9x + 15)$

13. $\frac{1}{3}(3x + 5) - \frac{1}{5}(5x + 3)$

14. $\frac{3}{4}(2x + 3y) - \frac{2}{5}(x - 2y)$

Given the values $a = 3$, $b = 5$, and $c = -2$, evaluate each expression. Show all work.

15. $ab^2 - c$

16. $-a^2 + c$

17. $(-a)^2 + c$

18. $b^2 - 4ac$

19. $a(b + c) - 4c$

20. $(ac)^2 - \frac{b^3}{a+c}$

Solving One- and Multi-Step Linear Equations

Solve each equation for x . You must show all algebraic steps.

1. $x + 7 = 11$

2. $6x = 30$

3. $2x + 7 = 13$

4. $4x + 5 = 16$

5. $\frac{x}{3} = 11$

6. $\frac{2x}{5} + 11 = 17$

7. $3x + 5 = 2x + 7$

8. $-2x = 4x - 17$

9. $3(x - 5) = 5x + 11$

10. $2(x + 3) + 5x = 7(x + 1)$

11. $3(2x + 1) - 2(x + 5) = 4(x - 3) + 5$

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12. $\frac{2}{3}x + 5 = 13$

13. $\frac{x+7}{3} = 20$

14. $\frac{2}{3}(6x + 9) = 11$

15. $\frac{1}{2}(6x + 4) = 5(2x - 8)$

16. $\frac{2}{3}(5x + 7) = \frac{1}{2}(3x + 5)$

17. $\frac{3}{5}(2x + 8) = \frac{5}{3}(x + 11)$

18. $\frac{3}{4}x - \frac{1}{4}x + \frac{5}{3} = \frac{25}{6}$

19. $\frac{3}{4}x + \frac{1}{6}x + 3 = \frac{2}{3}x + 5$

Graphing Linear Functions in Slope-Intercept Form*Find the slope of the line between each pair of points.*

1. $(3, -20), (5, 8)$

2. $(17, -13), (17, 8)$

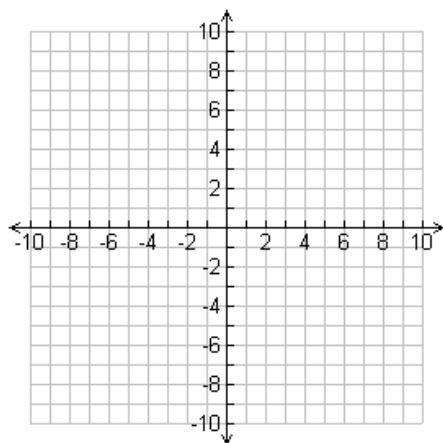
3. $(12, 2), (-7, 5)$

Given the equation in slope-intercept form, identify the slope and y-intercept. Then graph the function.

4. $y = 3x + 5$

$m = \underline{\hspace{2cm}}$

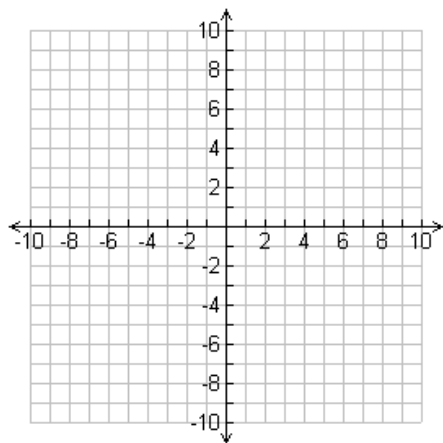
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5. $y = -2x + 3$

$m = \underline{\hspace{2cm}}$

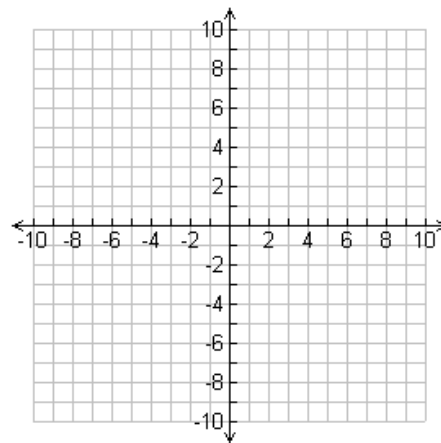
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6. $y = \frac{3}{2}x - 1$

$m = \underline{\hspace{2cm}}$

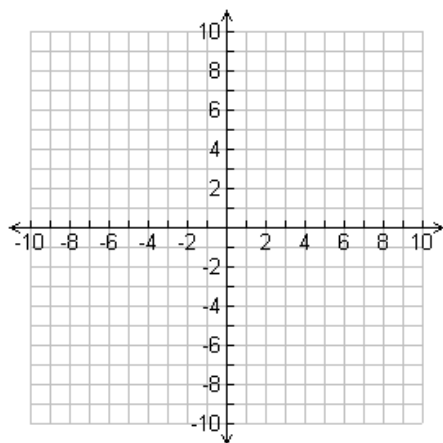
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7. $y = -x + 1$

$m = \underline{\hspace{2cm}}$

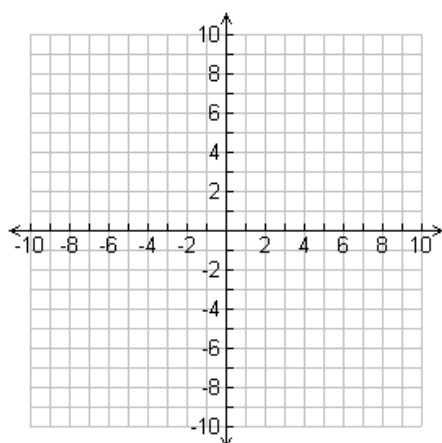
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8. $y = -\frac{3}{5}x$

$m = \underline{\hspace{2cm}}$

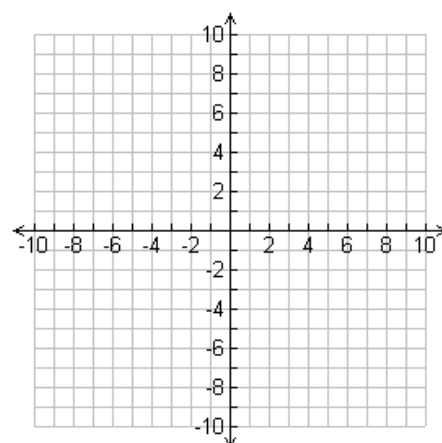
$b: \underline{\hspace{2cm}}$



9. $y = -3$

$m = \underline{\hspace{2cm}}$

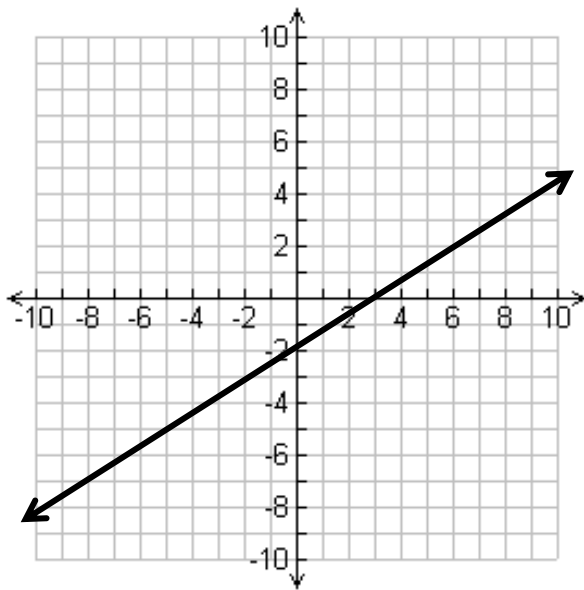
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Given the graph, identify the slope and y-intercept. Then write the equation in slope-intercept form.

10.

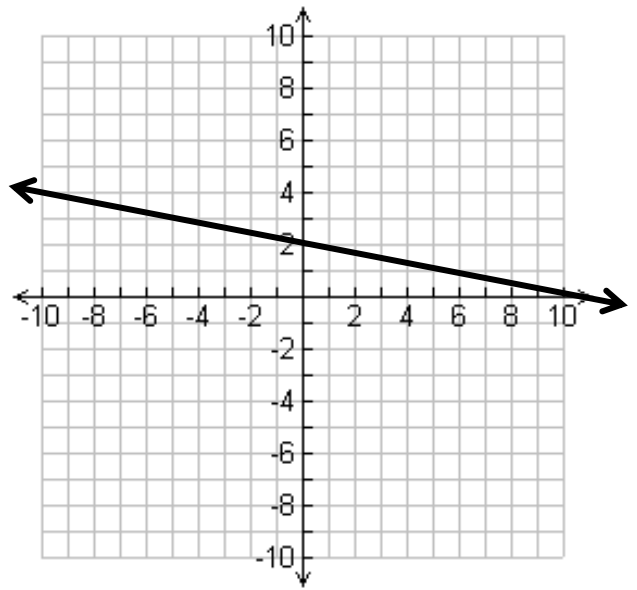


$m =$ _____

$b:$ _____

Equation: _____

11.

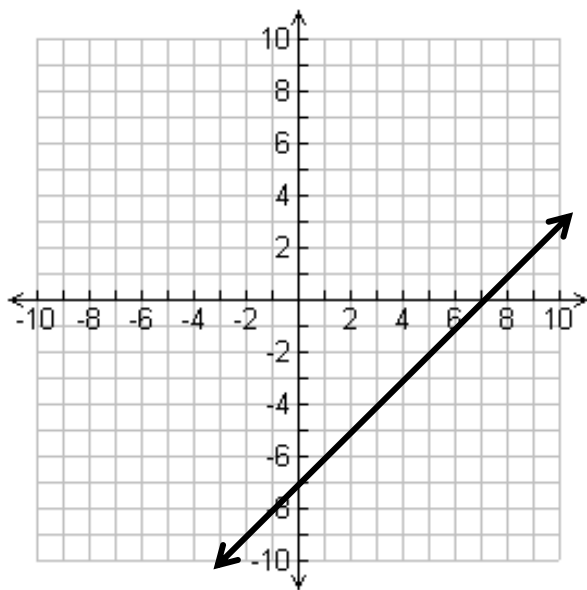


$m =$ _____

$b:$ _____

Equation: _____

12.

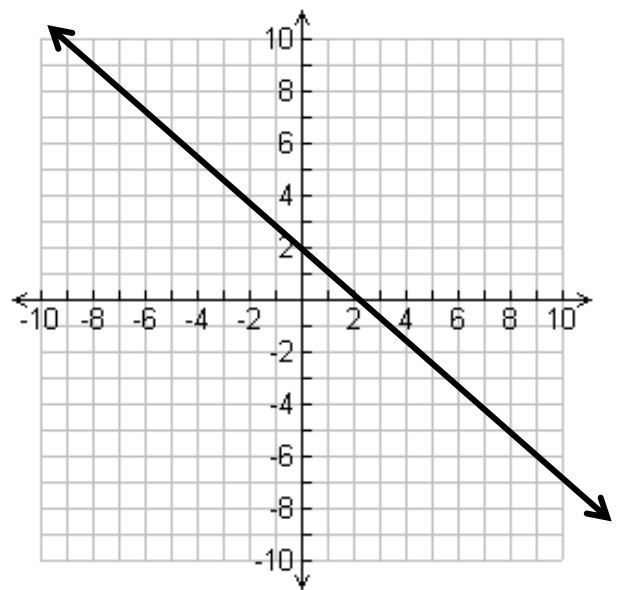


$m =$ _____

$b:$ _____

Equation: _____

13.



$m =$ _____

$b:$ _____

Equation: _____

Solving Systems of Equations using Substitution and Graphing

Determine if the given point is a solution to the system of equations.

1. $\begin{cases} y = 6x - 11 \\ -2x - 3y = -7 \end{cases} \quad (2,1)$

2. $\begin{cases} y = 2x + 3 \\ 3x + y = 10 \end{cases} \quad (2,7)$

Solve the systems of equations using the substitution method. Write your answer as an (x,y) coordinate.

3. $\begin{cases} y = -3x + 5 \\ 5x - 4y = -3 \end{cases}$

4. $\begin{cases} -3x - 3y = 3 \\ y = -5x - 17 \end{cases}$

5. $\begin{cases} x = -2y - 1 \\ -x + 5y = -20 \end{cases}$

6. $\begin{cases} x = -2y - 1 \\ -2x - 4y = -20 \end{cases}$

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7.
$$\begin{cases} x = -\frac{5}{2}y - 1 \\ -x + 5y = 46 \end{cases}$$

8.
$$\begin{cases} y = -x + 6 \\ \frac{1}{4}x + \frac{1}{3}y = 5 \end{cases}$$

Solve the following system of equations using the **graphing** method. Write your answer as an (x,y) coordinate.

9.
$$\begin{cases} y = 2x + 3 \\ y = -x + 9 \end{cases}$$

10.
$$\begin{cases} y = -\frac{1}{2}x + 4 \\ y = -\frac{4}{3}x - 1 \end{cases}$$

