

## Cherry Creek High School

Summer Assignment for students entering:

### GEOMETRY HONORS

Please have the following worksheets completed and ready to be handed in on the first day of class, August 14, 2024. Make sure you show your work where appropriate. That especially includes showing how you find the y-intercepts for problems 10-15 on Page 2. Answers are provided for you to check; however, you will not be given credit if you do not show work on problems that require it. Please neatly organize your work and use notebook paper when there is not enough room to show all your work on these worksheets. It is expected that you have a good understanding of this material coming into Geometry Honors, as teachers will not be doing an extensive review of previously learned material.

This assignment is designed to start the year off strong, so please wait until late July or early August to start and complete it. Just do not wait to do it until the night before school starts!

Have a great summer and we look forward to seeing you in the fall!

The CCHS Math Department

**No Calculator.**

**Simplify each with positive exponents only.**

1.  $(7^3)(7^{11})$

2.  $x^2x^6$

3.  $(6x^4y^5)(7x^5y)$

4.  $\frac{x^7}{x^2}$

5.  $\frac{30x^9y^5}{-6x^2y}$

6.  $\frac{x^{-5}y^3m^2}{x^2y^{-8}m^6}$

7.  $(3^4)^5$

8.  $(x^{-2})^3$

9.  $(-2x^5y)^3$

10.  $\left(\frac{2x^3}{3y^4}\right)^2$

11.  $\left(\frac{6yx^6}{3y^4x^2}\right)^4$

12.  $\left(\frac{2x^2}{m^3}\right)^{-2}$

**Combine like terms.**

13.  $3x + x - 2y + 4y$

14.  $7(x - 3) + 6(2x + 5y)$

15.  $-7x - 12(x + 4) - x + 13$

16.  $x^2 + 3x - 3x^2 - x$

17.  $-2(x^2 + 4x^3) - x^3$

18.  $8xy + 2x + 9y - 1$

19.  $4w(p - 1) - 2pw + 4w - p$

20.  $-4r - 7r + 6r - 2r$

21.  $xy^2 + x^2y + 5xy^2 - 2xy^2$

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**Answers:** 1.  $7^{14}$  2.  $x^8$  3.  $42x^9y^6$  4.  $x^5$  5.  $-5x^7y^4$  6.  $\frac{y^{11}}{x^7m^4}$  7.  $3^{20}$  8.  $\frac{1}{x^6}$  9.  $-8x^{15}y^3$  10.  $\frac{4x^2}{9y^8}$

11.  $\frac{16x^{16}}{y^{12}}$  12.  $\frac{m^6}{4x^4}$  13.  $4x + 2y$  14.  $19x + 30y - 21$  15.  $-20x - 35$  16.  $-2x^2 + 2x$

17.  $-9x^3 - 2x^2$  18.  $8xy + 2x + 9y - 1$  19.  $2pw - p$  20.  $-7r$  21.  $4xy^2 + x^2y$

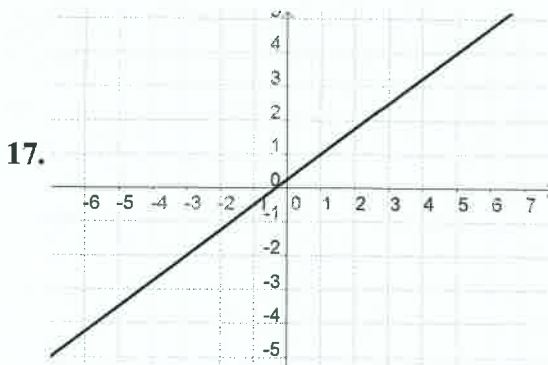
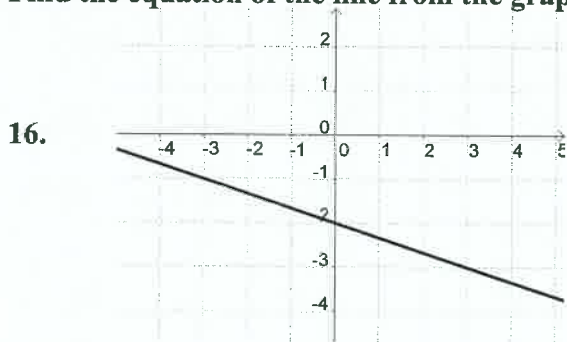
**No Calculator.** Find the slope of the line that contains the points.

1. (2, 5) (7, 7)                      2. (-3, 2) (6, 5)                      3. (7, -4) (8, -3)

Find the equation of the line in slope-intercept form ( $y=mx + b$ ) using the given information. #7-15 require work to be done on a separate sheet of paper.

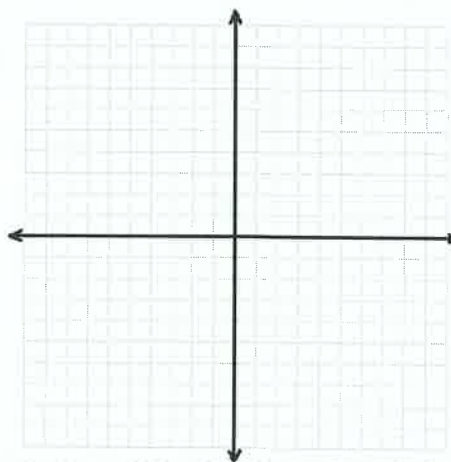
4. Slope = 5, y-intercept = 2            5.  $m = -4$ ,  $b = -9$             6.  $m = 1/3$ ,  $b = 1/4$   
 7.  $m = 3$ , goes through (2, 5)        8.  $m = -2$ , goes through (-1, -4)    9.  $m = 1$ , goes through (0, 0)  
 10. goes through (1, 4) & (3, 10)    11. goes through (-3, -5) & (-1, -1)    12. goes through (5, 7) & (8, 1)  
 13. goes through (3, 6) & (6, 8)    14. goes through (-2, 2) & (-6, 4)    15. goes through (5, 5) & (10, 12)

Find the equation of the line from the graph.



Graph the lines on the same grid given the equations.

18.  $3x + 2y = 14$   
 19.  $y = -4$   
 20.  $x = -8$



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- Answers: 1.  $\frac{2}{5}$     2.  $\frac{1}{3}$     3. 1    4.  $y = 5x + 2$     5.  $y = -4x - 9$     6.  $y = \frac{1}{3}x + \frac{1}{4}$     7.  $y = 3x - 1$     8.  $y = -2x - 6$   
 9.  $y = x$     10.  $y = 3x + 1$     11.  $y = 2x + 1$     12.  $y = -2x + 17$     13.  $y = \frac{2}{3}x + 4$     14.  $y = -\frac{1}{2}x + 1$   
 15.  $y = \frac{7}{5}x - 2$     16.  $y = -\frac{1}{3}x - 2$     17.  $y = \frac{3}{4}x + \frac{1}{4}$

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Summer Assignment - Page 3  
Solving Linear Equations and Inequalities, Systems

Name \_\_\_\_\_

No Calculator.

Solve for x. Show all work.

1.  $3x - 9 = 12$

2.  $7(x + 2) - 1 = 48$

3.  $6x - 3 + 4x + 8 = 105$

4.  $5x - 7(x - 8) = 48$

5.  $\frac{x}{7} - 12 = -19$

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

7.  $7x + 6 = 4(x - 9)$

8.  $\frac{1}{3}x - \frac{3}{4} = 2 + \frac{1}{2}x$

9.  $\frac{6x - 2}{3} + \frac{x - 3}{2} = \frac{1}{5}$

Solve the inequality for x. Show all work.

10.  $3 + 2x < 7x - 22$

11.  $4(3 - 2x) \geq -x - 37$

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

Solve the system for x and y. Show all work.

13.  $2x - y = 14$   
 $5x + y = 63$

14.  $2x + 2y = 2$   
 $6x + 4y = -16$

15.  $-3x - 5y = -31$   
 $-7x + 2y = -45$

16.  $x = 3 + y$   
 $2(x - 4) - y = 1$

17.  $y = 3(4 - 2x)$   
 $-3y + 5x + x = -4x - 22$

18.  $3x + 2y = 17$   
 $6x + 4y = 25$

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Answers: 1.  $x = 7$  2.  $x = 5$  3.  $x = 10$  4.  $x = 4$  5.  $x = -49$  6.  $x = \frac{9}{5}$  7.  $x = -14$  8.  $x = -\frac{33}{2}$  9.  
 $x = \frac{71}{75}$  10.  $x > 5$  11.  $x \leq 7$  12.  $x \geq -\frac{8}{9}$  13. (11, 8) 14. (-10, 11) 15. (7, 2) 16. (6, 3) 17.  $(\frac{1}{2}, 9)$   
18.  $\emptyset$

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Summer Assignment - Page 4  
Multiplying/Factoring Review

Name \_\_\_\_\_

No Calculator.

**Multiply.**

1.  $4x(x+6)$

2.  $(x-4)(x-3)$

3.  $(x+8)(x+9)$

4.  $(x+7)(x-7)$

5.  $(x-10)(x-10)$

6.  $(x+11)^2$

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

8.  $(-5x+4)(2x-9)$

9.  $(7x+y)(x-3y)$

**Factor.**

10.  $3x^2 + 15x$

11.  $-4x^2 - 20x$

12.  $5x^3 + 35x^2$

13.  $x^2 - 9$

14.  $4x^2 - 25$

15.  $x^2 + 36$

16.  $x^2 + 7x + 12$

17.  $x^2 - 12x + 20$

18.  $x^2 + 14x - 32$

19.  $x^2 - x - 42$

20.  $x^2 + 2x - 63$

21.  $x^2 + x - 56$

22.  $2x^2 - 11x - 21$

23.  $12x^2 + 5x - 2$

24.  $6x^2 - x - 15$

25.  $x^3 + 6x^2 + 5x$

26.  $x^3 - 11x^2 + 30x$

27.  $2x^4 + 9x^3 - 5x^2$

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**Answers:** 1.  $4x^2 + 24x$  2.  $x^2 - 7x + 12$  3.  $x^2 + 17x + 72$  4.  $x^2 - 49$  5.  $x^2 - 20x + 100$  6.  $x^2 + 22x + 121$   
7.  $12x^2 + 5x - 3$  8.  $-10x^2 + 53x - 36$  9.  $7x^2 - 20xy - 3y^2$  10.  $3x(x+5)$  11.  $-4x(x+5)$  12.  $5x^2(x+7)$   
13.  $(x+3)(x-3)$  14.  $(2x-5)(2x+5)$  15.  $x^2 + 36$  16.  $(x+3)(x+4)$  17.  $(x-10)(x-2)$   
18.  $(x+16)(x-2)$  19.  $(x-7)(x+6)$  20.  $(x+9)(x-7)$  21.  $(x+8)(x-7)$  22.  $(2x+3)(x-7)$   
23.  $(4x-1)(3x+2)$  24.  $(3x-5)(2x+3)$  25.  $x(x+5)(x+1)$  26.  $x(x-6)(x-5)$  27.  $x^2(2x-1)(x+5)$

**No Calculator.**

**Solve for x (using factoring). Show all work.**

1.  $x^2 - 14x + 40 = 0$

2.  $x^2 + 15x - 100 = 0$

3.  $x^2 - 22 = 9x$

4.  $x^2 - 121 = 0$

5.  $9x^2 - 49 = 0$

6.  $x^2 + 12x + 36 = 0$

7.  $3x^2 + 14x - 5 = 0$

8.  $6x^2 - 5x - 6 = 0$

9.  $x^3 + 8x^2 - 48x = 0$

**Solve for x (using the quadratic formula). Show all work.**

10.  $x^2 - 4x + 2 = 0$

11.  $x^2 - 5x - 7 = 0$

12.  $x^2 + 5x + 7 = 0$

**Solve the literal equations for x. Show all work.**

13.  $5y + 3x = -4$

14.  $9x - by = c$

15.  $12ax - 36 = 6ax$

16.  $5(y + 7) = -3(x + y)$

17.  $cx + 4c = 5x + 7c$

18.  $d^2 - 4(x + 2) = d(x - 2)$

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Answers: 1.  $x = 4, 10$  2.  $x = -20, 5$  3.  $x = -2, 11$  4.  $x = \pm 11$  5.  $x = \pm \frac{7}{3}$  6.  $x = -6$  7.  $x = -5, \frac{1}{3}$

8.  $x = -\frac{2}{3}, \frac{3}{2}$  9.  $x = -12, 0, 4$  10.  $2 \pm \sqrt{2}$  11.  $\frac{5 \pm \sqrt{53}}{2}$  12.  $\emptyset$  13.  $\frac{-5y - 4}{3}$  14.  $\frac{by + c}{9}$  15.  $\frac{6}{a}$

16.  $\frac{8y + 35}{-3}$  17.  $\frac{3c}{c - 5}$  18.  $d - 2$

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Summer Assignment - Page 6  
Simplifying Radicals

Name \_\_\_\_\_

**No Calculator.**

**Simplify.**

1.  $\sqrt{8}$

2.  $\sqrt{27}$

3.  $\sqrt{40}$

4.  $4\sqrt{45} + 2\sqrt{20}$

5.  $-5\sqrt{8} + \sqrt{32}$

6.  $\sqrt{50} - \sqrt{16} + \sqrt{72}$

7.  $\sqrt{6} \cdot \sqrt{15}$

8.  $\sqrt{30} \cdot \sqrt{55}$

9.  $4\sqrt{3} \cdot 5\sqrt{27}$

10.  $\frac{\sqrt{36}}{\sqrt{25}}$

11.  $\frac{\sqrt{75}}{\sqrt{25}}$

12.  $\frac{\sqrt{44}}{\sqrt{99}}$

**Answers should not have radicals in the denominator so please rationalize.**

13.  $\frac{5}{\sqrt{3}}$

14.  $\frac{\sqrt{7}}{\sqrt{2}}$

15.  $\frac{\sqrt{6}}{\sqrt{12}}$

16.  $\frac{4}{1+\sqrt{3}}$

17.  $\frac{8}{2-\sqrt{2}}$

18.  $\frac{10}{5-\sqrt{5}}$

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**Answers:** 1.  $2\sqrt{2}$  2.  $3\sqrt{3}$  3.  $2\sqrt{10}$  4.  $16\sqrt{5}$  5.  $-6\sqrt{2}$  6.  $11\sqrt{2} - 4$  7.  $3\sqrt{10}$  8.  $5\sqrt{66}$  9. 180  
10.  $\frac{6}{5}$  11.  $\sqrt{3}$  12.  $\frac{2}{3}$  13.  $\frac{5\sqrt{3}}{3}$  14.  $\frac{\sqrt{14}}{2}$  15.  $\frac{\sqrt{2}}{2}$  16.  $-2 + 2\sqrt{3}$  17.  $8 + 4\sqrt{2}$  18.  $\frac{5 + \sqrt{5}}{2}$