

**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 16, 2023. Make sure you show your work where appropriate. Answers are provided for you to check; however, you will not be given credit if you don't 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 of your work on these worksheets. It is expected that you have a good understanding of this material coming into Honor's Geometry, as teachers will not be doing an extensive review of previously learned material.

This assignment is designed to start the year of strong, so please wait until late July or early August to start and complete it.

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

The CCHS Math Department

Cherry Creek High School
 Summer Assignment - Page 1
 Exponents/Like Terms Review

Name _____

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

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. $4xy^2 + x^2y$

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Summer Assignment - Page 2 - Lines

Name _____

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 $(5, 7) \& (8, 1)$

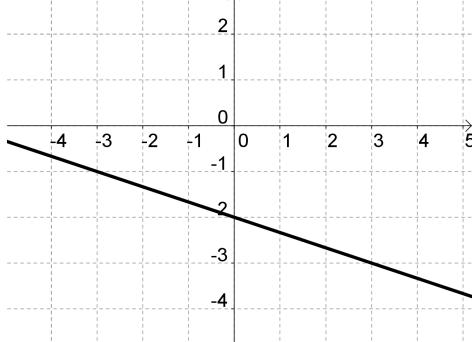
13. goes through $(3, 6) \& (6, 8)$

14. goes through $(-2, 2) \& (-6, 4)$

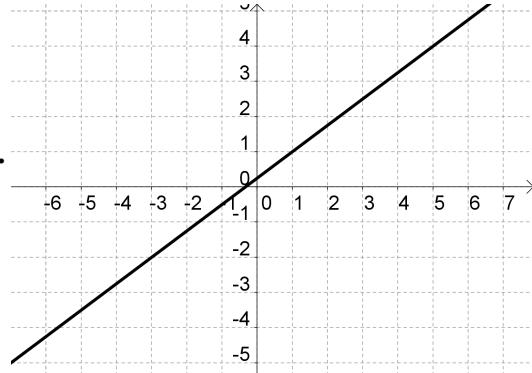
15. goes through $(5, 5) \& (10, 12)$

Find the equation of the line from the graph.

16.



17.

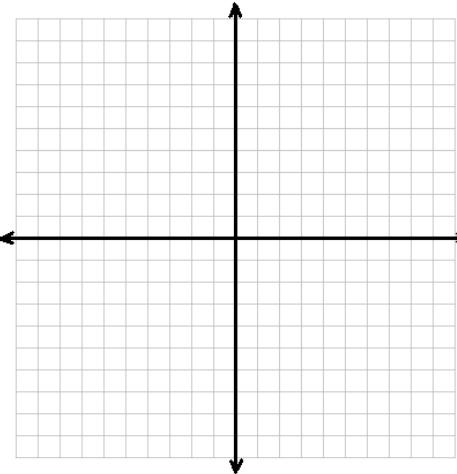


Graph the lines on the same grid given the equations.

18. $3x + 2y = 14$

19. $y = -4$

20. $x = -8$



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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Name _____

Summer Assignment - Page 3

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. $\begin{aligned} 2x - y &= 14 \\ 5x + y &= 63 \end{aligned}$

14. $\begin{aligned} 2x + 2y &= 2 \\ 6x + 4y &= -16 \end{aligned}$

15. $\begin{aligned} -3x - 5y &= -31 \\ -7x + 2y &= -45 \end{aligned}$

16. $\begin{aligned} x &= 3 + y \\ 2(x - 4) - y &= 1 \end{aligned}$

17. $\begin{aligned} y &= 3(4 - 2x) \\ -3y + 5x + x &= -4x - 22 \end{aligned}$

18. $\begin{aligned} 3x + 2y &= 17 \\ 6x + 4y &= 25 \end{aligned}$

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

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. $x^2(2x - 1)(x + 5)$

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Summer Assignment - Page 5
Solving Quadratics and Literal Equations

Name _____

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

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

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. $\frac{5+\sqrt{5}}{2}$