

**Cherry Creek High School**  
**Summer Assignment for Students Entering CP Algebra 2**

The summer assignment is intended as a review for you in preparation for the first day of class. When you return to Math this school year, your teacher would like to “hit the ground running” with Algebra 2 topics and not have to review too much of Algebra 1. To be best prepared, please complete this assignment and bring it with you on the first day of class. Answers are provided for you to check.

For best practice, don't start too early but don't wait until the last day of summer break. Have a great summer and we look forward to seeing you in the Fall! -The CCHS Math Department

Strengthen your mental math skills by completing these **without a calculator**. Follow the order of operations (PEMDAS) and show ALL STEPS of work when appropriate.

1.  $(-12) + (-16)$

2.  $5 - 7$

3.  $-23 + 8$

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

5.  $-\frac{21}{4} - \left(-\frac{7}{4}\right)$

6.  $\frac{3}{5} - \frac{3}{4}$

7.  $\frac{14+8}{4-2}$

8.  $48 + 2[12 \div (2 \cdot 3)]$

9.  $\sqrt{3^2 - 4(2)(-5)}$

10.  $4(8 - 6)^2 + 4 \cdot 3 - 2 \cdot 8 \div 4$

11.  $3^4 + 25 \div (2 + 3)$

12.  $16 + (12 \div 2) + 3 \times 15$

Simplify each expression by combining like terms **without a calculator**. Make sure to distribute first if necessary! Show all steps of work when appropriate.

13.  $4a + 5a$

14.  $14y + y$

15.  $5x - 3x + 8x$

16.  $3x - 11x + 2x$

17.  $(4x + 5) + (3x - 4)$

18.  $5x - 2(3x + 1)$

19.  $a - (2a - 5)$

20.  $x^2 + 3x - (4x^2 - 5)$

21.  $3x^3 - 3(2x^3 - 3x)$

Evaluate the expression given that  $a = 2$ ,  $b = -3$ ,  $c = 5$ , and  $d = -1$ . Show all work using order of operations.

22.  $2a - 3b$

23.  $d^2 + bc$

24.  $ab - 4d$

25.  $5d^2 - 4d + 7$

26.  $3a(c - a)^2$

27.  $\frac{4b-c}{d-a}$

Before reviewing properties of exponents, complete the tables for powers of 2, 3, 4, and 5 (without a calculator). Then, check to make sure you were right using your calculator. These powers should be memorized!

$2^0 =$        $2^1 =$        $2^2 =$        $2^3 =$        $2^4 =$        $2^5 =$        $2^6 =$        $2^7 =$        $2^8 =$

$3^2 =$        $3^3 =$        $3^4 =$        $3^5 =$        $4^2 =$        $4^3 =$        $4^4 =$        $5^2 =$        $5^3 =$

Simplify completely using the properties of exponents. Reduce all fractions completely and only use positive exponents in your answer. Remember the following exponent rules, where  $a$  and  $b$  are real and  $y \neq 0$ :

$$x^a \cdot x^b = x^{a+b} \quad (x^a)^b = x^{a \cdot b} \quad \frac{x^a}{x^b} = x^{a-b} \quad \left(\frac{x}{y}\right)^a = \frac{x^a}{y^a} \quad x^{-a} = \frac{1}{x^a} \quad x^0 = 1$$

28.  $x^3 \cdot x^5 \cdot x$

29.  $5^3 \cdot 5^{-2}$

30.  $a^5 \cdot a^{-8} \cdot a^0$

31.  $(2xy^4)^3$

32.  $(3x^4)^2 \cdot 4x^5$

33.  $(5a^{-3}b^0c^7)^{-2}$

34.  $\frac{24c^5d^3}{8c^2d^2}$

35.  $\frac{100x^{3a}y^{-5}}{25x^{-a}y^6}$

36.  $\left(\frac{2x^4y^{-3}}{3x^{-1}y^4}\right)^{-3}$

Solve the linear equation without a calculator. Show all algebraic work.

37.  $y + 11 = 8$

38.  $x - 9 = -20$

39.  $5x + 3 = 18$

40.  $\frac{x}{4} - 2 = 5$

41.  $\frac{2}{3}x = 12$

42.  $-4(x + 2) = 12$

43.  $7x - 1 = 23 - 5x$

44.  $-6x - 10x = -32$

45.  $5x - 2 + 3x = 2x + 6 - 4x$

46. Erika babysits in her spare time and charges \$10 to take any job plus an additional \$7 per hour. Write an equation to represent how much money Erika earns,  $P$ , for babysitting  $h$  hours.

47. How much would Erika earn if she babysat for 8 hours? Show all work using your equation above.

48. If Erica charged \$52 for childcare, how many hours did she watch the child? Show all work using your equation above.

Solve the equation by factoring, using the example provided:

$$2x^2 - 7x + 3 = 0 \rightarrow (2x - 1)(x - 3) = 0 \rightarrow 2x - 1 = 0, x - 3 = 0 \rightarrow x = \frac{1}{2}, x = 3$$

49.  $x^2 + 10x + 16 = 0$

50.  $x^2 + 5x - 14 = 0$

51. Hint: Factor the GCF!  
 $3x^2 - 15x = 0$

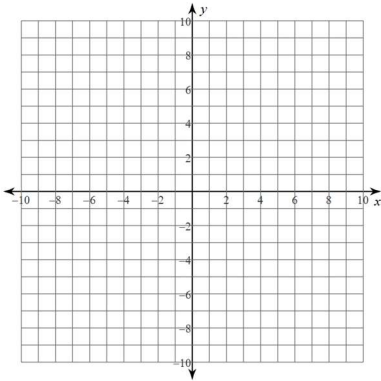
52.  $3x^3 - 9x^2 - 12x = 0$

53.  $x^2 - 25 = 0$

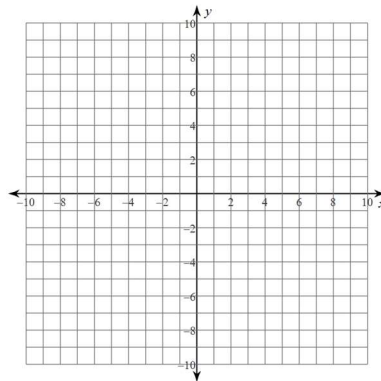
54.  $5x^2 - 16x + 3 = 0$

Graph the linear function. Some are in slope-intercept form and others are in standard form.

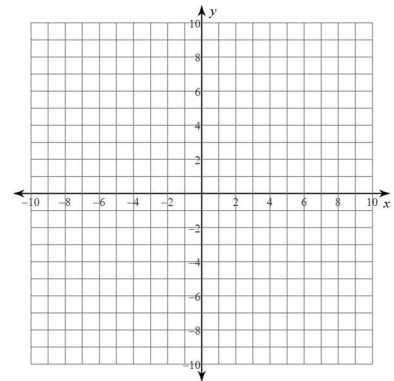
55.  $y = 3x - 4$



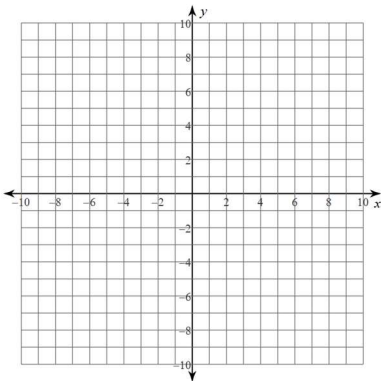
56.  $f(x) = \frac{2}{3}x - 7$



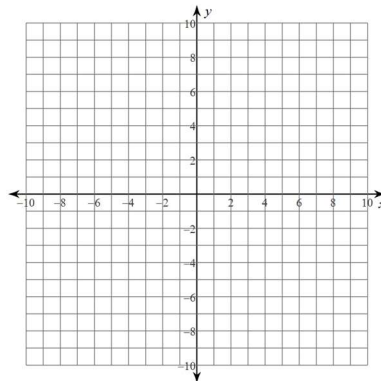
57.  $y = -\frac{5}{3}x + 2$



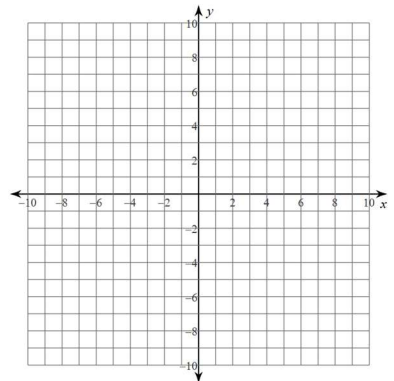
58.  $y = x - 4$



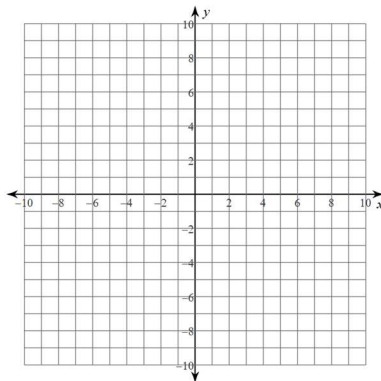
59.  $f(x) = -\frac{3}{4}x$



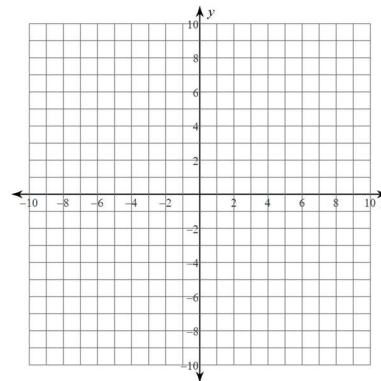
60.  $g(x) = \frac{1}{4}x - 3$



61.  $3x + 4y = 12$



62.  $6x - 2y = 18$



63.  $x - 3y = 6$

