



2019 – 2020

*Bishop Kelley High School*

*Summer Math Program*

*Course: Algebra II*

NAME: \_\_\_\_\_

**DIRECTIONS:**

Show all work in the packet.

- Algebra II College Prep: A TI-84 or TI-30XIIS calculator is required for this class. Algebra II students are **HIGHLY** encouraged to purchase a TI-84 series graphing calculator as it is extremely useful in this class and when preparing for the ACT/SAT. We recommend purchasing it when prices are lowest, during the back to school sales in August.
- No matter when you have math, this packet is due on the first day of your math class.
- This material will be graded, and points awarded at the discretion of each teacher
- A test on this material will be administered during the first week of the class.
- An additional resource for help with this packet is <http://www.khanacademy.org>. It provides videos of about 10 minutes in length on hundreds of different math topics.

*Math Teachers will be available in C-1 the following dates/times if you need help.*

Date	Time
<i>Wednesday, July 24<sup>th</sup></i>	<i>8-9:30am</i>
<i>Monday, July 29<sup>th</sup></i>	<i>8-9:30am</i>
<i>Tuesday, July 30<sup>th</sup></i>	<i>8-9:30am</i>

Evaluate each expression using order of operations. Show all work

1)  $\frac{7-1}{3+5-6}$

2)  $(2 \cdot 4)^2 - 2 \cdot 3$

3)  $(3^3 - 6 - 1) \cdot 3$

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

Simplify each expression by distributing and combining like terms. Show all work.

5)  $-10m(2 - 4m)$

6)  $8r(4 + 5r)$

7)  $6x - 5(x - 7)$

8)  $-5x(6x - 2) - 10x$

9)  $10x(x + 9) - 10x(-7x - 3)$

10)  $-4(2m + 5) + 3(10m + 7)$

Solve each equation. Show all work.

11)  $-12 = x - 18$

12)  $-18 = 1 - b$

13)  $\frac{k}{10} = -3$

14)  $-16r = 160$

15)  $-3 = \frac{2+a}{2}$

16)  $8 + \frac{n}{10} = 9$

17)  $19 = 7 + 4x + 4$

18)  $-5 - 8x + 2 = 13$

19)  $90 = 5(2 + 2r)$

20)  $-84 = -4(2a + 5)$

$$21) 11 - 6b = -2(3b - 8) + 3$$

$$22) 40 - 4x = -4(4x - 7)$$

$$23) -2(4 - 5x) + 3(-3 - 6x) = 5x + 7 - 7x$$

$$24) 2(6 + 4n) + 6 = -2(-3 - n)$$

**Find the slope of the line through each pair of points.**

$$25) (-20, -20), (-19, -14)$$

$$26) (14, -8), (18, -7)$$

$$27) (-15, -13), (4, 12)$$

$$28) (-20, 0), (-20, 8)$$

**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

$$29) \text{ through: } (5, 2), \text{ slope} = \frac{4}{5}$$

$$30) \text{ through: } (1, 3), \text{ slope} = -2$$

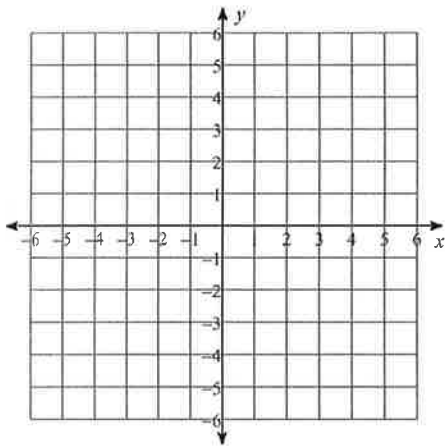
Write the slope-intercept form of the equation of the line through the given points.

31) through:  $(-3, -3)$  and  $(-4, 4)$

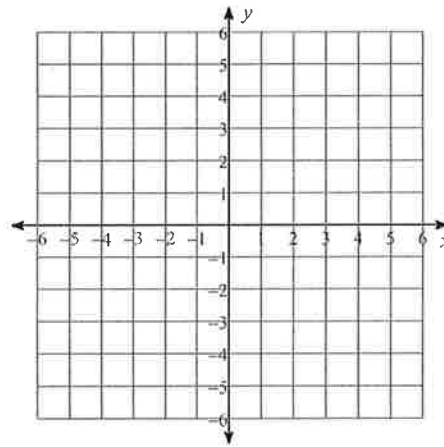
32) through:  $(-3, 3)$  and  $(1, 1)$

Sketch the graph of each line.

33)  $x - 2y = -2$



34)  $6x + y = -2$



Solve each system by substitution.

35)  $2x + y = -20$   
 $4x - 4y = 8$

36)  $-2x + y = 18$   
 $-4x - 3y = -4$

Solve each system by elimination.

$$\begin{aligned} 37) \quad & 5x - 9y = -23 \\ & 10x - 3y = -16 \end{aligned}$$

$$\begin{aligned} 38) \quad & -4x + 5y = 15 \\ & 10x - 8y = -24 \end{aligned}$$

Simplify using the properties of exponents. Your answer should contain only positive exponents.

$$39) \quad 2 \cdot 2^4 \cdot 2^0$$

$$40) \quad 3^{-4} \cdot 3^{-3} \cdot 3^{-3}$$

$$41) \quad 4mn^0 \cdot 4m^3n^4$$

$$42) \quad -a^4 \cdot 4b^3$$

$$43) \quad 3a^{-3}b^2 \cdot -a^{-1} \cdot 4a^{-3}b^{-4}$$

$$44) \quad -4yx^4 \cdot x^{-4}y^4$$

$$45) \quad (-a^3b^4)^4$$

$$46) \quad (-3x^{-2}y^3)^{-1}$$

47)  $-\frac{4xy^4}{x^4}$

48)  $\frac{-3m^{-2}n^3}{-4m^2n^3}$

49)  $\frac{4u}{-4u^{-3}v^{-4}}$

50)  $\frac{-vu^3}{-2u^{-4}v^4}$

51)  $(-2a^3b^3)^{-1} \cdot -a$

52)  $-2y^{-2} \cdot (-xy^{-3})^2$

53)  $(-u^2v^2)^{-3} \cdot -v^4$

54)  $-2xy^3 \cdot (2y)^3$

**Find each product. (Hint FOIL)**

55)  $(6k + 3)(7k - 3)$

56)  $(7a - 4)(8a + 6)$

57)  $(k + 4)(7k - 8)$

58)  $(8n - 5)(8n + 5)$

59)  $(8r - 1)(8r + 1)$

60)  $(3x - 2)^2$

**Solve each quadratic equation by factoring.**

61)  $x^2 = -6x + 7$

62)  $a^2 + 8a = -16$

63)  $p^2 - 8 = -2p$

64)  $x^2 + 2x = 3$

65)  $x^2 + 3 = 4x$

66)  $x^2 + 24 = 10x$

67)  $5x^2 + 39x = -28$

68)  $21r^2 = 40 - 41r$



69)  $8x^2 - 11x = 10$

70)  $7x^2 + 55x = -42$

**Simplify each radical expression. Be sure to rationalize denominators when necessary.**

71)  $\sqrt{150p^4}$

72)  $\sqrt{128x^2}$

73)  $\sqrt{245x^3}$

74)  $\sqrt{252k^3}$

75)  $3\sqrt{45r}$

76)  $-2\sqrt{54a^2}$

77)  $\sqrt{3} \cdot \sqrt{3}$

78)  $-4\sqrt{15} \cdot 2\sqrt{15}$

79)  $\sqrt{5} \cdot \sqrt{3}$

80)  $\sqrt{20} \cdot -3\sqrt{15}$

81)  $\frac{\sqrt{15}}{\sqrt{3}}$

82)  $\frac{\sqrt{5}}{\sqrt{45}}$

83)  $\frac{3}{\sqrt{2}}$

84)  $\frac{\sqrt{4}}{\sqrt{3}}$

85)  $\frac{\sqrt{2}}{\sqrt{5}}$

86)  $\frac{\sqrt{25}}{\sqrt{15}}$

87)  $\frac{\sqrt{2}}{4\sqrt{5}}$

88)  $\frac{\sqrt{2}}{2\sqrt{5}}$

89)  $\frac{2\sqrt{15}}{\sqrt{10}}$

90)  $\frac{\sqrt{3}}{3\sqrt{2}}$