

*College Algebra, Probability and Statistics
Summer Prep 2020 (Anthony)*



Name: _____



Review Question Packet:

This packet is for you to practice certain prerequisite skills needed for College Algebra, Probability and Statistics. It is due the **first week of school**. Several things will take place the first week of school. The packets will be graded for effort and quickly returned to you. I will answer questions in class during the first few days. You will then have a test on the packet where half the grade will come from the summer effort grade and the other half will come from your test score. For example, an effort grade of 100 plus a 70 test score will average to an 85 for your first major grade of the quarter.

Packet Instructions:

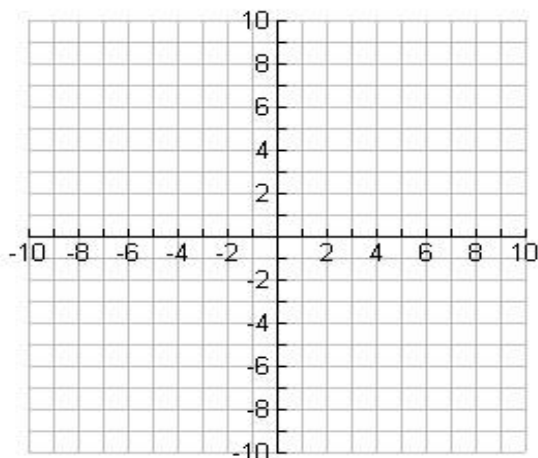
- Show all answers neatly in the space provided for full credit
- If more space is needed to work a certain problem, attach separate work.
- Zero credit will be given if your work is hard for me to read due to messy or tiny handwriting.
- Box your answers
- Calculators are not allowed unless specified otherwise.
- You may work with a friend, but you may not copy their work.
- You may search the internet, but you may not use an online tutor.

I. Geometry Topics

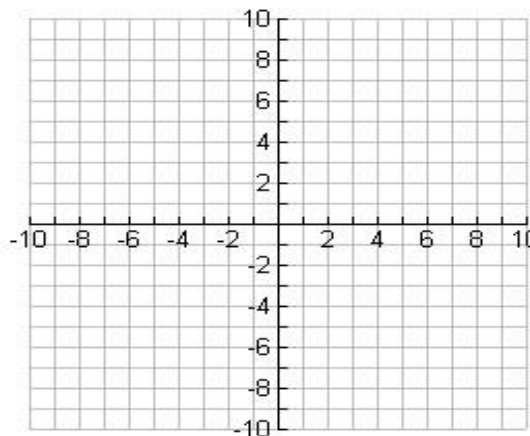
Directions – answer the following.

1. Find the area of $\triangle ABC$ with $A(-5, 2)$, $B(1, 6)$ and $C(3, 2)$.

Hint: graphing the points might help.



2. Write the equation of the line parallel to the line $4x - 6y = -1$ that intersects the function $3x - 2y = 12$ at its x -intercept. *Hints: parallel lines have the same slope. All x -intercepts have a y -coordinate of zero.*



3. Given the distance between $(x, 1)$ and $(-2, 5)$ is $2\sqrt{7}$, find the value(s) of x . Leave your answer in simplified exact form.

4. Write an equation of the line in slope-intercept form with x -intercept of -3 and a y -intercept of -5 .

II. Quadratics/Polynomials

Directions - Factor completely each of the following:

5] $4x^2 + 27x + 35$

6] $-28y^2 + 7t^2$

7] $x^3 - 2x^2 - 9x + 18$

8] $8a^4 + 27ab^3$

Directions - Solve each of the following:

9] $-3x^2 - 5x + 12 = 0$

10] $3x^2 + 5x = 6$

11] $x^2 + 2x + 3 = 0$

12] $225 - b^2 = 0$

III. Exponents

Directions - Simplify using only positive exponents.

13] $\left(\frac{81}{64}\right)^{-\frac{1}{2}}$

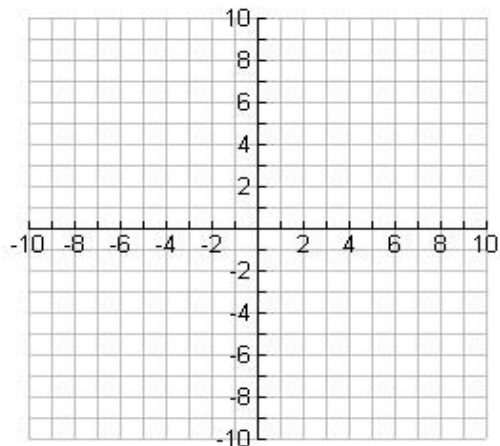
14] $(27^{-2})^{\frac{1}{3}}$

15] $\frac{(3x^2)^{-1}}{6x^{-3}}$

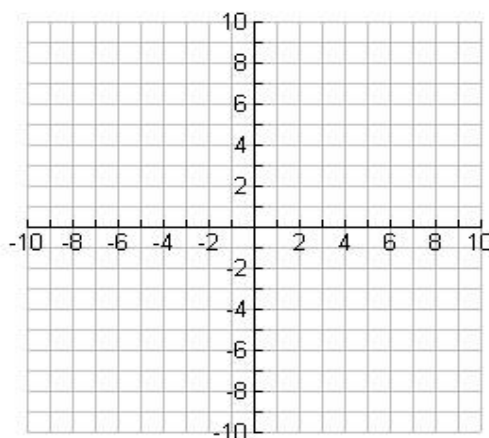
16] $(13y)^{-1}$

IV. Graphing: Graph each of the following using intercepts and extra points as needed to sketch a nice graph

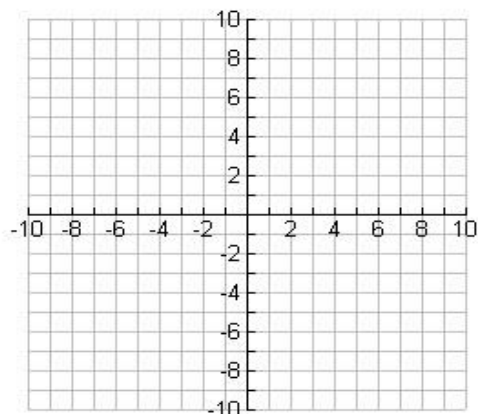
17] $y = 2\sqrt{x+9} - 4$



18] $y = -\frac{1}{2}(x-4)^2 + 8$

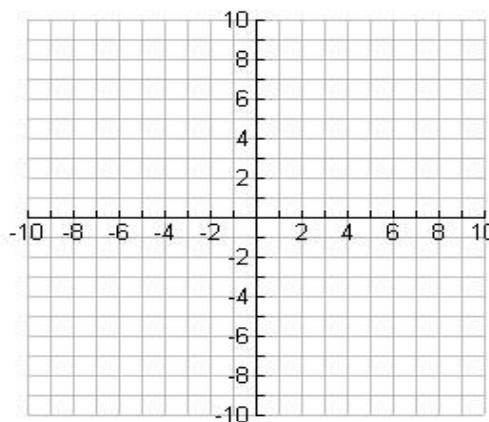


19] $x + 3y = -6$



20]

$y = |2x - 2| - 6$



V. Rational Expressions: Directions - Simplify to a single fraction or expression:

21] $\frac{1}{ab} - \frac{2}{b^2}$

22] $\frac{x^2 + 6x + 8}{x^2 - 4}$

23] $\frac{-x-1}{x+1}$

24] $\frac{3x+1}{x} - \frac{2}{x+1}$



VI. Simplifying Radicals

Directions – Simplify each of the radicals, if possible.

25] $\sqrt{27}$

26] $\sqrt[3]{128}$

27] $\sqrt{\frac{45}{9}}$

28] $\sqrt{x^2 + 64}$

29] $\frac{10 + \sqrt{50}}{5}$

30] $\sqrt{18} + \sqrt{8}$

VII. Solving Rational & Radical Equations Solve the equations below and check for extraneous solutions.

31] $\frac{10}{x+4} = \frac{15}{4x+4}$

32] $\frac{10}{x^2 - 2x} + \frac{4}{x} = \frac{5}{x-2}$

33] $\sqrt{11x+3} - 2x = 0$

34] $\sqrt{10x} - 2\sqrt{5x-25} = 0$

VIII. Basic Probability and Statistics

35] In a batch of 280 water purifiers, 12 were found to be defective. What is the probability that a water purifier chosen at random will be defective? Write the probability as a percent. Round to the nearest tenth of a percent if necessary.

36] The results of a survey of students' favorite animal are organized in the frequency table below. What is the relative frequency of the preference for cats? Express as a fraction.

Animal	Frequency
Dog	9
Cat	6
Bird	6
Mouse	10
Snake	4

37] Verne has 6 math books to line up on a shelf. Jenny has 4 English books to line up on a shelf. In how many more ways can Verne line up his books than Jenny?

38] A local pizzeria offers 11 toppings for their pizzas and you can choose any 5 of them for one fixed price. How many different types of pizzas can you order with 5 toppings?

39] Joey's sock drawer is unorganized and contains 3 black dress socks, 7 black ankle socks, 4 brown dress socks, and 3 brown ankle socks. What is the probability that Joey chooses a sock at random that is brown or is a dress sock?

VIII. Miscellaneous Problems

Solve the following systems of equations using any method. Show all of your work, clearly mark your answers and check your solutions.

40]
$$\begin{cases} 2x - 3y = -9 \\ -x + 3y = 6 \end{cases}$$

41]
$$\begin{cases} 2x - 3y = 6 \\ x - y = 5 \end{cases}$$

42]
$$\begin{cases} x - 3y + 3z = -4 \\ 2x + 3y - z = 15 \\ 4x - 3y - z = 19 \end{cases}$$

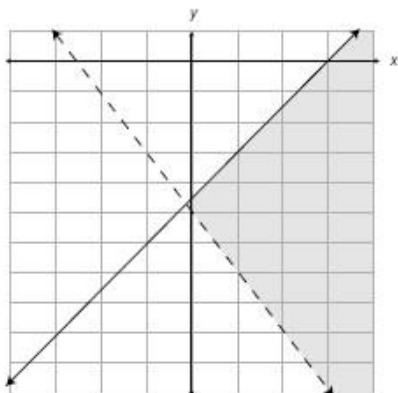
43]
$$\begin{cases} 4x + 2y + 3z = 1 \\ 2x - 3y + 5z = -14 \\ 6x - y + 4z = -1 \end{cases}$$



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44] Solve: $4m - 5 > 7$ or $4m - 5 < -9$.

45] Write the equations for the system of inequalities graphed below.



46] At a baseball game Sam bought 2 hamburgers and 1 order of French fries for a total of \$3.75. Erica bought 1 hamburger and 2 orders of French fries for a total of \$3.00. What is the price of one hamburger?

Recommended Resources:

<http://www.khanacademy.com>

<http://www.hippocampus.org/?select-textbook=19>

<http://tutorial.math.lamar.edu/Classes/Alg/Alg.aspx>

<http://coolmath.com>

You can also consult your Algebra 2 and/or Geometry textbooks from past courses for concepts you may not remember.