Algebra 2-Geometry Summer Review
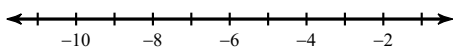
Name_____

PreCalc Juniors 2019 Part 1

Date_____ Period_____

Solve each equation.

1) $\left|-5+n\right| - 2 = -1$

2) $-7\left|1-4a\right| - 9 = -114$
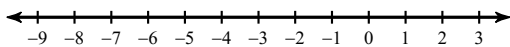
Solve each inequality and graph its solution.
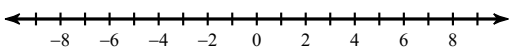
3) $2(4-6r) \geq 92$

Solve each compound inequality and graph its solution.

4) $2+5v < -18$ or $-8v+10 < 34$

Solve each inequality and graph its solution.

5) $\left|9n-5\right| < 68$

6) Juliana received a 100, 95 and 87 on her first three exams. What score range can she receive and maintain an A average (93 or better) on her exams.

Simplify.

7) $\sqrt{64x^2y^3}$

8) $\sqrt[3]{-81a^7b^3}$

9) $\sqrt{150a^3b}$

10) $\dfrac{2\sqrt{3}}{3\sqrt{27}}$

11) $\dfrac{4\sqrt{4n^3}}{3\sqrt{5n}}$

12) $-3\sqrt{45} + 3\sqrt{5}$

13) $2\sqrt{8} + 3\sqrt{18}$

14) $-4\sqrt{6}\left(5\sqrt{10} - \sqrt{2}\right)$

15) $\left(-2 + \sqrt{3}\right)\left(-2 + 5\sqrt{3}\right)$

16) $\dfrac{2 + 2\sqrt{2}}{2 + \sqrt{2}}$

Solve each equation. Remember to check for extraneous solutions.

17) $\sqrt{10p + 36} = 6$

18) $\sqrt{x - 5} = \sqrt{2x - 15}$

19) $16 = \sqrt{3 - 11n} + 10$

20) $-4 = -5 + \sqrt{\dfrac{x}{7}}$

Simplify.

21) $-12 + 3i - \left(-7 + 6i\right)$

22) $\left(6 - 3i\right)\left(-4 - 5i\right)$

23) $\dfrac{6}{3+2i}$

24) $\dfrac{-7+9i}{2-7i}$

Factor each completely.

25) $80u^2 - 5v^2$

26) $9u^2 - 16v^2$

27) $5n^2 + 16n + 3$

28) $6v^2 - 17v + 12$

Solve each equation by factoring.

29) $v^2 - 4v = -v + 10$

30) $5n^2 + 3n - 7 = -7 + 4n^2$

Solve each equation with the quadratic formula.

31) $6x^2 - 4x = 112$

32) $3k^2 = 3 - 2k$

Solve for x.

33) The length of a rectangle is equal to 2 times the width plus 3 feet. If the area of the rectangle is 20 square feet, what are the dimension of the rectangle?

Simplify. Your answer should contain only positive exponents.

34) $2u^2v^5 \cdot 2u^6v^5$

35) $\dfrac{\left(m^{-4}n^3p^{-6}\right)^3}{n^4p^4 \cdot m^{-1}p^6}$

Divide.

36) $(12n^3 + 4n^2 + n) \div 4n^2$

37) $(m^3 + 10m^2 + 14m - 4) \div (m + 2)$

38) $(x^3 - 14x^2 + 37x + 30) \div (x - 10)$

Simplify each expression.

39) $\dfrac{5p^2 + 19p - 4}{7p^3 + 28p^2}$

40) $\dfrac{6v}{6v - 6} \cdot \dfrac{4v^2 + 12v - 16}{2v + 8}$

41) $\dfrac{x - 9}{2x^2 + 18x} \cdot \dfrac{10x^2 + 12x}{5x + 6}$

42) $\dfrac{2n}{4mn} - \dfrac{6n}{2}$

Solve each equation. Remember to check for extraneous solutions.

43) $\dfrac{x - 5}{x} - \dfrac{x + 2}{x} = 1$

44) $\dfrac{1}{k} + \dfrac{k + 1}{k} = \dfrac{1}{2}$

Write the slope-intercept form of the equation of each line.

45) $45 = -9y + 6x$

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

46) through: $(2, 2)$, slope $= \dfrac{3}{2}$

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

47) through: $(-2, 4)$ and $(-2, -5)$

**Write the slope-intercept form of the equation of the line described.**

48) through: $(-2, 2)$, parallel to $y = -x + 5$

49) through: $(-3, -3)$, perp. to $x = 0$

50) You are saving money for a new car. Your parents give you $2,000 to help your saving get started and you can save $100 weekly. Write a linear equation that determines your savings (y) for a given amount (x) of weeks saving money. Then, determine how many weeks it will take you to save for a car that costs $6,200 for a new bike.

Graph the piecewise function

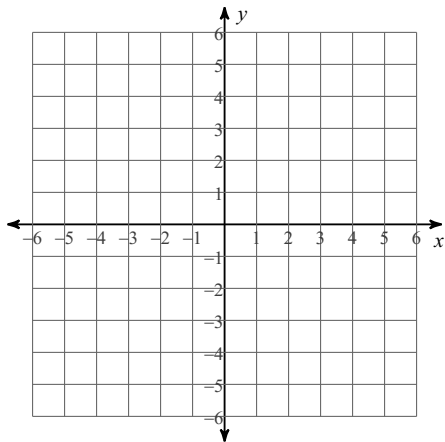51) $\begin{cases} -2x - 3, & x < 0 \\ 2x + 1, & x \geq 0 \end{cases}$
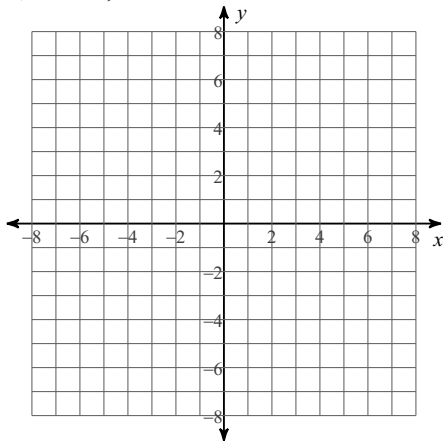
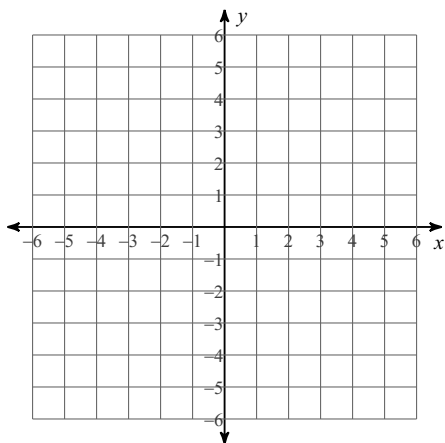52) $\begin{cases} -4x - 1, & x < 0 \\ x - 5, & x \geq 0 \end{cases}$

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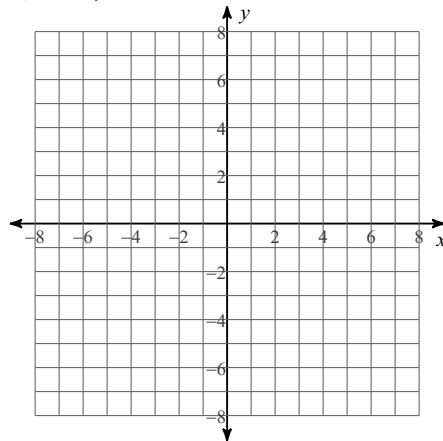
Graph each equation.

53) $y = |2x + 2| + 1$

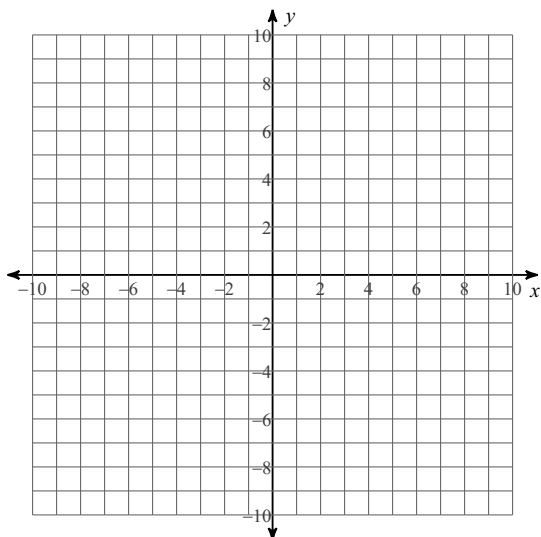**Sketch the graph of each linear inequality.**

54) $y \geq \dfrac{7}{2}x - 4$

Solve the system of equations by graphing.

55) $y = -\dfrac{3}{5}x - 1$

$\quad y = -2x + 6$

Solve each system by elimination.

56) $x - 4y = 11$

$\quad -x + 4y = -16$

Solve each system by substitution.

57) $-7x + 2y = -7$

$\quad x + y = 10$

58) Cristo Rey students were selling tamales as part of a school fundraiser. Tamales were \$4 for Queso con rajas and \$5 for Pollo. They ended up raising \$1,000 in ticket sales by selling a total of 230 tamales. Write a system of equations for the situation and determine how many tamales of each kind were sold.

Sketch the graph of each function. Label the x-intercept(s), zeros.

59) $f(x) = -2x^2 - 8x - 4$
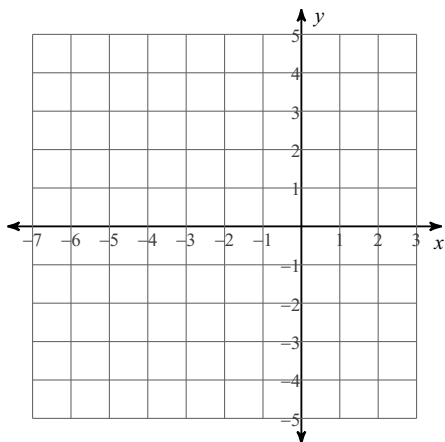
Perform the indicated operation.

60) $g(n) = n - 4$
$f(n) = 2n^2 - 5n$
Find $g(n) + f(n)$

61) $f(x) = 2x + 2$
$g(x) = x^2 - 1$
Find $f(x) \div g(x)$

62) $f(n) = -n + 3$
$g(n) = n^3 + 3n$
Find $f(n) \cdot g(n)$

63) $h(t) = 2t + 5$
$g(t) = -3t$
Find $h(t) - g(t)$

64) $f(x) = 3x + 1$
$g(x) = 2x$
Find $f(g(x))$

65) $g(t) = -t^2 - 3$
$f(t) = t + 4$
Find $g(f(t))$