Going into . . .

Algebra 2 and Honors Algebra 2

FCS 2018
Summer Assignment

for students <u>entering</u>
Algebra II <u>and</u> Honors Algebra II

Name:_____

Algebra II Summer Review

This is a study guide for your first assessment in this course. The packet will <u>not</u> be graded; instead you will be assessed over the content a few days after return to school. The concepts in this packet cover prerequisite skills. If you look through the packet and find many questions beyond your previous knowledge, it may be you have been placed into the wrong course. If this is the case, please notify the teacher of your concern immediately.

Operations with Fractions – Calculator skills – you may use your calculator

Add or subtract. Fractions should have a <u>simplified</u> <u>fraction</u> answer.

_____1. $-\dfrac{19}{12} - \dfrac{4}{12}$ (leave answer as an improper fraction.)

_____2. $-\dfrac{3}{10} - \left(-\dfrac{3}{5}\right)$

_____3. $-\dfrac{1}{5} + \dfrac{3}{4} - \dfrac{3}{10}$

Multiply or divide. Simplify fractions. Fractions should have a <u>simplified fraction</u> answer. *Calculator Skills*

_____4. $-\dfrac{2}{3} \cdot \left(-\dfrac{2}{3}\right) \cdot \left(-\dfrac{2}{3}\right)$

_____5. $(-17.22) \div (-0.14)$

_____6. $\dfrac{4}{7} \div \left(-\dfrac{12}{21}\right)$

Evaluating Expressions

Evaluate each expression.

_____7. $3s - 6t$ for $s = 10$ and $t = 6$

_____8. $|s| - |t|$ for $s = 23$ and $t = -17$

_____9. $|s - t|$ for $s = 23$ and $t = -17$

Polynomials

Simplify completely and combine like terms.

_____10. $13t - 3 - 2(7 - 4t)$

_____11. $2(4x - 5y) - 3(7x + 3y)$

Determine whether or not the indicated number is a solution of the equation.

_____12. $2x - 6 = -16$; -2

Solving Equations

Solve.

_____13. $\frac{2}{7}x = 14$

_____14. $2m+5-7m=50$

_____15. $18.2+3.8x=7.4-1.6x$

_____16. $\frac{3x-10}{8}=\frac{-x}{4}$

_____17. $8=3+5(y-2)$

_____18. $4(2a-8)=\frac{1}{6}(36a+18)$

_____

Solve.

_____19. Phil's average is 0.250. This is about $\frac{5}{6}$ as much as Joe's average. What is Joe's

average? <u>(Write answer in decimal form – do not round)</u>

_____20. One phone company charges 65% of its normal long-distance rate after 5 p.m. A day-rate long-distance call from Houston to Chicago costs 20 cents per minute. How much is an 11-minute call between these two cities after 5 p.m.?

Exponents

Simplify completely.

_____21. $4^3 \cdot 4^2$

_____22. $(4a^5 b^4)(-3a^4 b^3)$

_____23. $\dfrac{a^8}{a^3}$

_____24. $(-2x^3 y^4)^4$

Radical Expressions

Simplify completely. Assume variables are nonnegative. Leave answers in simplified radical form.

_____25. $-\sqrt{20}$

_____26. $\sqrt{48x^3 y^4}$

_____27. $\sqrt{(x+3)^2}$

_____28. $\sqrt{3ab^2cd^4} \bullet \sqrt{30a^3b^5c^2d}$

_____29. $\sqrt{6}\left(\sqrt{10}+\sqrt{15}\right)$

_____30. $\left(2-2\sqrt{5}\right)^2$

Rationalize the denominator and simplify.

_____31. $\sqrt{\dfrac{5}{10}}$

_____32. $\sqrt{\dfrac{x^2}{24}}$

Add or subtract each expression. Leave answers in simplified radical form.

_____33. $2\sqrt{a}-3\sqrt{a}$

_____34. $\sqrt{196x}+\sqrt{625x}$

_____35. $3\sqrt{15}+\sqrt{60}-3\sqrt{45}$

_____36. **Use <u>substitution</u> to solve the system of equations. Answer should be written as an *ordered pair*.**

$$-4x + y = 6$$
$$-5x - y = 21$$

_____37. **Use <u>elimination</u> to solve the system of equations. Answer should be written as an *ordered pair*.**

$$7x + 2y = 24$$
$$8x + 2y = 30$$

Write a system of equations and then solve using substitution or elimination.

38. A 25-cm piece of wood is cut into two pieces. One piece is 7 cm longer than the other. How long are the pieces?

Equation #1: _____

Equation #2: _____

Solution: _____

Multi-Step Linear Equation Word Problems

39. Write an equation then solve to find the integer. Two less than eight times a number is the same as nine less than seven times the number. What is the number?

Equation: _____

Solution: _____

40. Write an equation then solve to find the integers. Find three consecutive even integers with the sum of 42.

Equation: _____

Solutions: _____

Literal Equations (Solving for a specific variable)

Solve for the specific variable.

_____41. $A = \dfrac{1}{3}bh$ for b _____42. $Q = 4\pi r + 2h$ for r

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Linear Inequalities

Determine whether the specified number is a solution of the inequality. Answer yes or no.

_____43. $4y - 8y > 6$; -2

Solve the following inequalities. Answer in <u>interval notation</u>.

_____44. $x - 9 \geq -3$

_____45. $-.7x \geq 2.1$

_____46. $2p + 5 < 17$

Solve. Graph the solution set on the number line below.

47. $t + 5 > 9$

|—+—+—+—+—+—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|

48. $-2a - 6 \geq -5$

|—+—+—+—+—+—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|—+—+—+—+—|

Linear Equations

Find the <u>equation</u> of the line containing the following pairs of points or the given point with the indicated slope. (Write in SLOPE-INTERCEPT form.)

_____49. $(-5,2); m = 3$ _____50. $(9,3)$ and $(19, -17)$

Find the slope (m) <u>AND</u> y-intercept (b) of each line.

m: _____b: _____ 51. $y = -3x + 6$

m: _____b: _____ 52. $3y = -15x + 18$

m: _____b: _____ 53. $8x + 2y - 12 = 0$
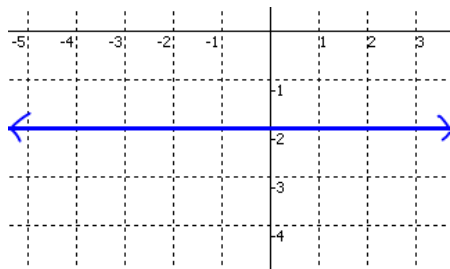

Write the equation in slope-intercept form of the line shown.

54. Equation: _____
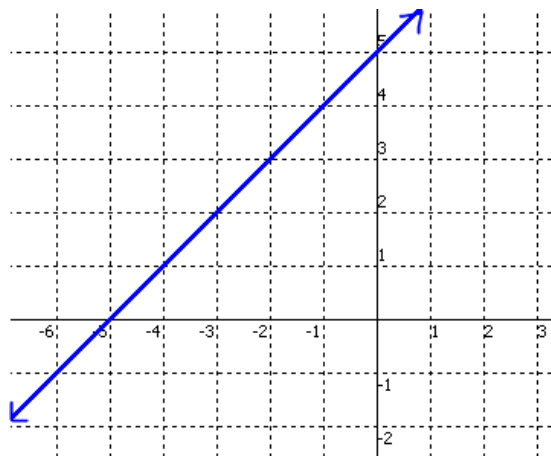
55. Equation: _____
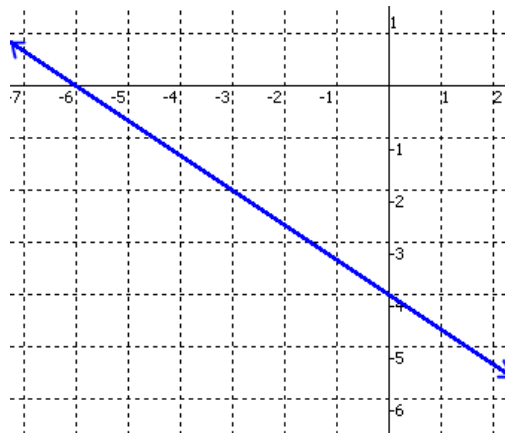
56. Equation: _____

57. Equation: _____
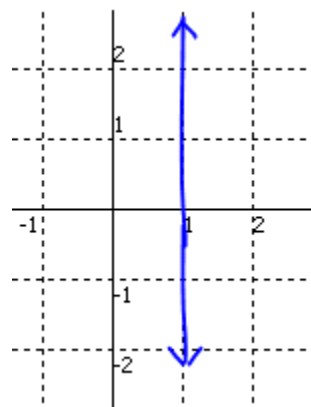
Methods of Factoring:

- Greatest Common Factor (GCF)
- Difference of Two Squares (DOTS)
- Trinomial with a=1
- Perfect Square Trinomial
- Grouping

Factor completely by using GCF method.

_____58. $2prh + 4pr$

_____59. $6x - 24y - 12$

Factor completely.

_____60. $y^2 - 6y + 9$

_____61. $x^2 - 9$

_____62. $2x^2 - 2y^2$

_____63. $3y^3 + 9y^2 - 2y - 6$

Quadratic Equations

<u>Solve</u> **each quadratic equation.**

To solve either:

- **Factor**
- **use square root**
- **quadratic formula**

then solve. (HINT: There should be TWO answers.)
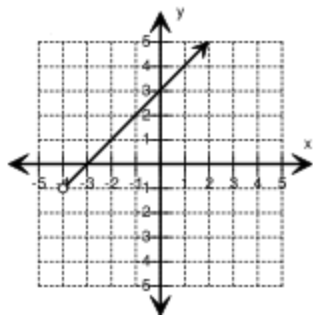
_____64. $s^2 + 5s = 0$ _____65. $w^2 - 144 = 0$

_____66. $x^2 - 2x - 15 = 0$ _____67. $6x^2 + 11x + 4 = 0$

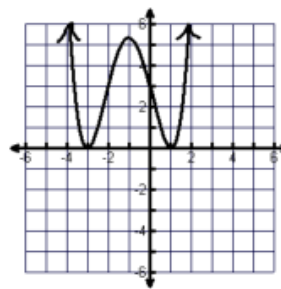What is the domain and range for the following graphs in interval notation?
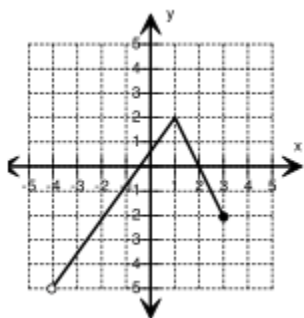
68.

Domain:_____

Range: _____

69.

Domain:_____

Range: _____

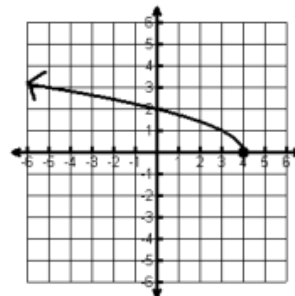Tell when the graph is increasing and decreasing in interval notation.

70.

Increasing:_____

Decreasing: _____

71.

Increasing:_____

Decreasing: _____

Describe the end behavior:

72.

$x \rightarrow$ _____ $f(x) \rightarrow$ _____

$x \rightarrow$ _____ $f(x) \rightarrow$ _____