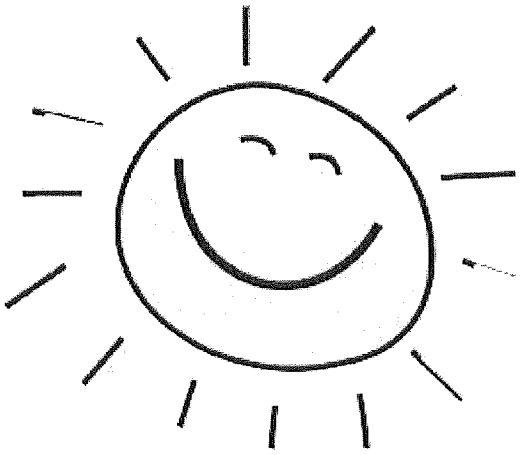


Honors Algebra 2
Summer Review Packet
2018

Name _____

Objectives for Honors Algebra 2 Summer Packet
2018

I. Basic Concepts of Algebra
(Problems: 1 to 44)

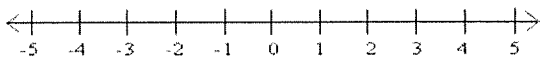
- To graph real numbers on a number line; to compare numbers, and to find their absolute values.
- To review the methods used to simplify numerical expressions and to evaluate algebraic expressions.
- To review properties of equality of real numbers and properties for adding and multiplying real numbers.
- To review the rules for adding, subtracting, multiplying and dividing real numbers.
- To solve certain equations in one variable.
- To translate word phrases into algebraic expressions and word sentences into equations.
- To solve word problems by using an equation in one variable.

II. Inequalities and Absolute Value
(Problems: 45 to 60)

- To solve simple inequalities in one variable.
- To solve conjunctions and disjunctions.
- To solve word problems by using inequalities in one variable.
- To solve open sentences involving absolute value.
- To use number lines to obtain quick solutions to certain equations and inequalities involving absolute value.

Directions: Complete each problem, **showing all work in the space provided below the problem.** You MUST show work or explain your solution in order to receive credit for the answer. There are hints for each problem in the right hand margin of the page.
CIRCLE YOUR ANSWERS!

	QUESTION	HINT
1.	Graph on a number line: $\sqrt{13}, -4\frac{1}{2}$, 0, -1, -2.6, $\lvert -4.75 \rvert$, 2	-Place a point on the number line representing the given numbers.



2. Write the numbers in Ex. 1 in order from least to greatest.

3. Use symbols to write the following, then solve.
"Negative two thirds of a number is greater than negative nine."

4. Simplify $-\lvert -6.5 \rvert$.

5. Point P has coordinate -1 on a number line. Find the coordinate of each point $3\frac{1}{2}$ units from P.

Simplify.

6. $25+2\bullet 3-12\div[2(3)]$

7. $2\bullet 3^2-(7-1)$

8. $\dfrac{5^3-1}{3+7\bullet 4}$

-Remember Order of Operations: PEMDAS
Step 1: Simplify parentheses or brackets.
Step 2: Evaluate all powers.
Step 3: Do all multiplication and/or division from left to right.
Step 4: Do all additions and/or subtraction from left to right.
***Be sure you can simplify these types of problems without a calculator.**

Evaluate if $m = 7$, $n = 3$, and $p = 1$.

9. p^3+mn^2

10. $\dfrac{2m^2-3n^2+p}{m-n-p}$

QUESTION

Name the property used in each step.

11. $\frac{1}{5}[(n+5)+(-n)]=\frac{1}{5}[(5+n)+(-n)]$

$=\frac{1}{5}[5+(n+(-n))]$

$=\frac{1}{5}[5+0]$

$=\frac{1}{5}\bullet 5$

$=1$

HINT

-Properties of Real Numbers:
Commutative, Associative, Identity

Inverse, Distributive

Find the value of each expression.

12. $64\div 4^2+3(3^2-1)$

13. $\frac{1}{10}\left[2(3+4)-3^2\right]$

14. $\frac{2^3-8(4^2)}{18+2^5}$

-Remember Order of Operations: PEMDAS

Step 1: Simplify parentheses or brackets.
Step 2: Evaluate all powers.
Step 3: Do all multiplication and/or division from left to right.
Step 4: Do all additions and/or subtraction from left to right.

Be sure you can simplify these types of problems without a calculator.

15. 42 + (-55) + (-29) + 13

16. $|-20+7|-|-12-12|$

17. $-12-(2-8)$

18. $-7[4-(-1)]+(-3)^2$

19. $\left(-\frac{3}{2}a^2\right)(-18)\left(\frac{5}{9}b\right)$

	QUESTION	HINT
20.	$\dfrac{-3-(-3)(-2)^2}{-7+2(-1)}$	
21.	$\dfrac{-6\div\left(-\dfrac{1}{2}\right)}{-21\div 7\bullet 6}$	
22.	Insert grouping symbols to make a true equation. $3^2-2^2-4\bullet 3+3=25$	-Place parentheses and/or brackets so that when you use the Order of Operations you get an answer of 25.
	#23-24 : Evaluate each expression if $x=-4$ and $y=-3$.	-Substitute values into the expression, then follow Order of Operations.
23.	$x^2-5xy+4y^2$	
24.	$\dfrac{x-y^3}{(x-y)^3}$	
25.	Divide: $\dfrac{66n^4-3n^2-24n}{-6}$	
26.	Multiply: $(-20)(-3a+2b-ab)$	
	Solve each equation.	-Use Distributive Property first if needed. -Combine like terms on each side of the equation. -Use Addition and Subtraction Properties of Equality to move the variables to one side and the constants to the other.
27.	$3(2x+5)=-7(x+9)$	
28.	$5-\dfrac{3}{7}m=26$	-Use Multiplication and Division Properties of Equality to isolate the variable.
29.	$5-[10-3(2a+1)+6a]=2(4-a)$	

QUESTION	HINT
30. $9-\frac{12}{w}=-3$	
31. The length of one base of a trapezoid is 6 cm greater than the length of the other base. The height of the trapezoid is 11 cm and its area is 165 cm^2. What are the lengths of the bases?	-Use the formula: $A=\frac{1}{2}h(b_1+b_2)$
Solve each equation or formula for the specified variable.	-Do the same steps that you do for solving an equation with one variable. **Example:** $\frac{3pq}{r}=12$ for p $r\left(\frac{3pq}{r}\right)=(12)r$ $3pq=12r$ $\frac{3pq}{3q}=\frac{12r}{3q}$ $p=\frac{12r}{3q}$
32. $A=2\pi r^2+2\pi rh$; for h	
33. $\frac{b}{a}-f=3m$; for a	
34. $5c-\frac{1}{2}dn=3c$; for n	
35. $2ax=3+5a$; for a	
Write answers as a simplified expression. 36. a. 7 less than a number b. Three times the difference of a number and its cube	-Choose a variable to represent one of the unknowns. Write an expression using that variable to represent the other unknown(s). **Example:** 18 less than the quotient of a number and 3. $\frac{n}{3}-18$
37. Ann left Vista and drove for t hours at 40mi/h toward Centerville. If Vista and Centerville are 200 mi apart, how many more miles must Ann drive?	

	QUESTION	HINT
38.	Find the measure of the third angle of a triangle if one angle has a measure $x°$ and the measure of the second angle is 15° less than half the measure of the first angle.	
39.	What is the sum of three consecutive even integers if m is the middle integer.	

Write an equation and solve. Be sure to define your variable.

40.	A car leaves town traveling at 40 mi/h. Two hours later, a second car leaves the same town, on the same road, traveling at 60 mi/h. In how many hours will the second car pass the first car? *Use the formula $d = rt$*	-Choose a variable to represent one of the unknowns. Write an expression using that variable to represent the other unknown(s). Write an equation representing the relationship(s) stated or implied in the problem. Solve the equation.
41.	Find three consecutive integers such that the sum of the first and twice the third is one more than three times the second.	
42.	Each of the two congruent sides of an isosceles triangle is 4 cm longer than half the base. Find the length of each side of the triangle if its perimeter is 36 cm.	
43.	A jar contains 40 coins consisting of dimes and quarters and having a total value of $4.90. How many of each kind of coin are there?	

QUESTION	HINT
44. Adults' tickets for the art museum cost \$1.50 more than children's tickets. One day 200 adults' tickets and 160 children's tickets were sold at the museum. The income from the adults' tickets was \$30 less than twice the income from the children's tickets. How much does each type of ticket cost?	

Solve each inequality. Then graph the solution set on a number line.

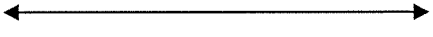
-Do the same steps that you would do if there were an equal sign. ***Remember if you are multiplying or dividing by a negative number you need to reverse the inequality symbol.***

45. $3(y-7) < y+5$

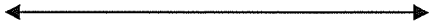
46. $-\left(\frac{3}{2}x+18\right) \leq 6$

47. $3(8-6t) \geq -2(5+9t)$

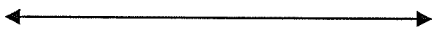
48. $-8 < 2(n+1) \leq 2$



49. $-7-5z \geq -3(z+1)$

	QUESTION	HINT
50.	$9 < \frac{m}{2} - 3 < 11$	-Be sure to perform the steps to **<u>each</u>** of the three parts of the inequality.
		
51.	$\frac{2}{3}b - 2 > 10$ or $\frac{3}{4}b + 5 < -4$	-Solve each inequality, then graph on the same number line.
		
52.	Amy wants to fence in a garden whose length is 2 m more than twice its width. What is the greatest width her garden can be, if she has at most 70 m of fencing?	Choose a variable to represent one of the unknowns. Write an expression using that variable to represent the other unknown. Write an inequality to representing the relationship stated in the problem, then solve.
53.	The student government can sell a total of 400 tickets to a basketball game. An adult ticket costs \$3 and a student ticket costs \$2. What is the minimum number of adult tickets that must be sold if the student government wants to collect at least \$1100?	
	Solve each equation. Check your solutions.	-Isolate the absolute value expression.
54.	$\lvert 2x + 3 \rvert = 5$	-When $\lvert a \rvert = b$, then $a = b$ or $a = -b$, so set up both equations and solve each.

	QUESTION	HINT
55.	$\lvert -6+3m\rvert = 6$	
56.	$2\lvert 2d-7\rvert +1 = 35$	
57.	$\lvert 2b+4\rvert -3 = 6b+1$	
58.	$\lvert 4x+6\rvert \geq 2$	



59.	$\frac{3}{2} \leq \left\lvert 2+\frac{1}{2}x \right\rvert$	

60. Translate the following statement into an open sentence using absolute value and the variable x: The numbers whose distance from -2 is at least 5 units.