Name:_____ Graded Geometry Honors Summer Assignment 2024

Directions: Show all work for full credit. Answers with no work will receive no credit.

1. Write the equation of the line $3x - 2y = -16$ in slope-intercept form.	2. Write the equation of the line $13x - 11y = -12$ in slope-intercept form.
3. Write the equation of the line in point-slope form that passes though the point (1, 2) and has a slope of 7	4. Write the equation of the line in point-slope form that passes though the point (3,5) and has a slope of $\frac{5}{3}$.
5. Write the equation of the line, in point-slope form, that is parallel to $y = 2x - 10$ and passes through (4, 2).	6. Write the equation of the line, in point-slope form, that is perpendicular to $y = -\frac{2}{3}x + 8$ and passes through (-3, 7).

7. Write the equation of the line, in point-slope form, that passes through the points (-3,7) and (3,3).	8. Write the equation of a horizontal line through the point (-2, 5).
9. If a line passes through the points (-2, 3) and (5, <i>y</i>) and has a slope of $\frac{4}{7}$, find the value of <i>y</i> .	10. If the point $(3, k)$ is on the graph of the line whose equation is $4y + x = -9$, find k .

Factor each expression completely.

11.	$3x^2 - 8x + 4$	 12.	$5x^2 - 30x + 40$
13.	$x^2 - 5x + 6$	14.	$16x^2 - 25y^2$

15. $x^4 - 81$	16. $15x^2 - 27x - 6$
17. $y^4 + 7y^2 - 18$	18. $x^2 - 3xy - 10y^2$

Solve:

19. One leg of a right triangle is 1cm longer than the other leg. The hypotenuse measures 5cm. Find the measure of each leg of the triangle.

20. The length of a rectangle is 3 times its width. If the width is decreased by 1 meter and the length is				
increased by 3 meters, the area of the rectangle that is formed is 72 square meters. Find the				
dimensions of the original rectangle				
21 Solve by completing the cauero	22 Solve by completing the causes			
21. Solve by completing the square:	22. Solve by completing the square:			
21. Solve by completing the square:	22. Solve by completing the square:			
21. Solve by completing the square: $x^{2} + 6x - 59 = 0$	22. Solve by completing the square: $x^2 + 23 = 12x$			
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23. Solve by completing the square:	24. Solve by completing the square:
23. Solve by completing the square: $2x^2 = -6 + 8x$	24. Solve by completing the square: $x^2 + 5x - 3 = 0$
25. Solve for <i>t</i> : 12(t+2) = 4 - (3+t)	26. Solve for <i>y</i> : 3y + z = am - 4y
27. Solve for <i>k</i> :	28. Solve for <i>x</i> :
(4k+5)(k+1) = 0	$\frac{3ax - n}{5} = -4$

20. Columbar vi	20. Colore for u
29. SOIVE IOF X:	$30. \ \text{SOIVE IOF } \mathcal{X}$:
$\frac{x}{-+1} = \frac{5}{1}$	$\frac{x+2}{x+2} = \frac{1}{x+2}$
2 4	11 x-8
24 Call a Canad	
131 Nolve for γ	37 Solve for r
31. Solve for x :	32. Solve for x :
31. Solve for x: $\frac{x}{x} + \frac{x+1}{x} = x$	32. Solve for x: $\frac{1}{2} + \frac{3}{2} = \frac{5}{2}$
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33. Solve algebraically.	34. Solve algebraically.
5x - 4y = -3	3x - 2y = 2
y = -3x + 5	5x - 5y = 10

Simplify the expressions. Leave all answers in simplest radical form.

35.	$\sqrt{28}$	36.	$4\sqrt{10} \cdot 3\sqrt{6}$	37.	$\sqrt{3x^2} \cdot 5\sqrt{3x^4}$
38.	$2\sqrt{3}\big(\sqrt{15}+\sqrt{60}\big)$	39.	$\sqrt{12} - 2\sqrt{3} + \sqrt{108}$	40.	$8\sqrt{5} - \sqrt{45} - \sqrt{80}$

41. Define each of the following geometry vocabulary terms and then draw a sketch illustrating each term.

Term	Definition	Sketch/Example
1. point		
2. line		
3. plane		
4. collinear		
5. line		
6. line segment		
7. segment bisector		
8. ray		
0 angle		
5. aligie		
10. right angle		
11. acute angle		
12. obtuse angle		
13. straight angle		

Beginning Geometry Problems:

Find the distance between each pair of points using the distance formula. Leave in simplest radical form where necessary.

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		Distance Formula:	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	
42.	(0, -2); (4, 1)		43. (6,-7); (3,-5)	
44.	(5, -8); (-8, 6)		45. (7,3); (-1,-4)	

Use the midpoint formula to find the midpoint of the line segment with the given endpoints.

Midpoint Formula: $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$				
46.	(8, -9); (0,5)	47. (-4,2); (2,-3)		
48.	(1, -7); (6, -12)	49. (11, -8); (-13, 3)		

Beginning Geometry Problems:

50. Name a pair of the following angles using the diagram below.					
a. complementary angles	b. supplementary angles				
c. adjacent angles	d. linear pair	A			
e. vertical angles					

51. Classify each angle as right, acute, obtuse, or straight.						
a.	∠UZW	b. ∠YZU	U T Z Y			
c.	∠TZY	d.∠UZT				
52. Identify each pair of angles as alternate interior, alternate exterior, corresponding, consecutive interior angles, linear pair, or vertical.						
a.	∠2 and ∠8	b. $\angle 8$ and $\angle 5$	$ \begin{array}{c} a \\ b \\ a \\ c \\ c \\ a \\ c \\ c$			
с.	∠1 and ∠9	d. $\angle 3$ and $\angle 6$				
e.	∠12 and ∠10	e. $\angle 3$ and $\angle 9$				