FINAL EXAM
HONORS ALGEBRA 1
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-5 -4 -3 -2 -1 0 1 2 3 4 5

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-5 -4 -3 -2 -1 0 1 2 3 4 5

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(2 points)

32. _____________________
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Honors Algebra I Final Exam

Evaluate the expression for the given values of the variables.

1. \( \frac{16.8}{x} \) when \( x = 2 \)

2. \( |6 - x| + 4 \) when \( x = 5 \)

Evaluate.

3. \( 4 [44 \div (10 - 8^2)] + 7 \)

Check whether the given number is a solution of the equation or inequality.

4. \( 10x - 4 \leq 20; 5 \)

Tell whether the pairing is a function.

5. 

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
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<tbody>
<tr>
<td>5</td>
<td>10</td>
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<td>10</td>
<td>15</td>
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<td>20</td>
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<td>20</td>
<td>25</td>
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Write an equation or inequality to model the situation.

6. Four hundred dollars is less than or equal to the product of $32 and the number \( p \) of passes to an amusement park.

Graph the numbers on a number line.

7. \(-0.6\) and \(2.1\)
Write the numbers in increasing order.

8. \(2 \frac{1}{3}, -\sqrt{8}, -\sqrt{11}, 4, -3\)

Simplify.

9. \(3y - (6y + 2)(-y)\)

10. \(\frac{x}{4} + \frac{6}{x}\)

11. \(3\sqrt{5} + 4\sqrt{5}\)

12. \(\sqrt{5} \cdot \sqrt{20}\)

Solve the equation

13. \(\frac{3}{x+2} = \frac{9}{4x-1}\)

14. \(\frac{2}{3}y = -48\)

15. Volume of a Cone: \(V = \frac{\pi r^2 h}{3}\)
   
   Solve for \(h\).

16. Temperature Conversion: \(F = \frac{9}{5}C + 32\)
   
   Solve for \(C\).

17. \(\sqrt{x} - 2 = 0\)

18. \(|x + 3| = 4\)

Rewrite the equation so that \(y\) is a function of \(x\).

19. \(\frac{2}{3}y + 4 = 2x\)
Decide whether the given ordered pair is a solution of the equation.

20. \( \frac{1}{2}x + 4 = 10y, \left(\frac{1}{2}, 2\right) \)

Find the \(x\)-intercept.

21. \( 3y - 10x = 4 \)

Find the \(y\)-intercept.

22. \( 7 - 12x = 3y \)

Find the slope of the line passing through the points.

23. \( (-10, -7), (1, -2) \)

Decide whether the graphs of the two functions are parallel lines.

24. \( f(x) = 3x + 2, f(x) = \frac{1}{3}x + 4 \)

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

25. The slope is \(-3\); the \(y\)-intercept is 5.

Write an equation of the line that passes through the point and has the given slope. Write the equation in slope-intercept form.

26. \((3, 2), m = \frac{1}{2}\)

Write an equation in slope-intercept form of the line that passes through the points.

27. \((-5, 3), (4, -5)\)
State whether $x$ and $y$ have a positive correlation, a negative correlation, or relatively no correlation.

28.

29.

Is the ordered pair a solution of the inequality?

30. $3x + 2y \leq 4; (4,3)$

Solve the inequality and graph the solution.

31.

32. The biology club budgeted $200 for their pancake breakfast. Each meal costs $1.50 to prepare. Write an inequality that represents the number of meals that can be prepared without going over the budget.

Graph the inequality.

33.

Is the ordered pair a solution of the system of linear equations?

34. $(4,1)$

$-x + y = -3$

$x + 3y = 6$
**FINAL EXAM**
**HONORS ALGEBRA I**

35. ____________________________  

(2 points)

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Name ____________________________
38. Graph and check to solve the linear system.

35. \(-2x + y = 1\)

\[2x + 3y = 11\]

Use the substitution method to solve the linear system.

36. \(x + y = 4\)

\[-5x + 2y = 6\]

Simplify the expression.

37. \(2^7 \cdot 2^9\)

38. \((x^3)^6\)

39. \(3x^2 \cdot (4x^3)^2\)

Rewrite the number in decimal form.

40. \(4.3269 \times 10^3\)
Match the equation with its graph for questions 41 to 43.

41. \( y = 4 - x \)

42. \( y = 4 (1.2)^x \)

43. \( y = 4 (0.2)^x \)

Find the sum or difference.

44. \( (2x^2 + 3x + 5) + (-x^2 + 4x - 7) \)

Find the Product.

45. \( (x - 4)(x - 5) \)

Use the zero-product property to solve the equation.

46. \( (x + 5)(x - 1) = 0 \)
Factor the Expression.

47. \( x^2 + 11x + 30 \)

48. \( x^2 - 16 \)

Sketch the graph of the function. Label the vertex.

49. \( y = 3x^2 \)

Solve the equation by finding square roots.

50. \( x^2 = 49 \)

Use the quadratic formula to solve the equation.

51. \( 0 = x^2 + x - 20 \)

Decide how many solutions the equation has.

52. \( x^2 - 2x + 1 = 0 \)

Find the missing length in the right triangle.

53.

\[
\begin{array}{c}
\text{12} \\
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\]

Find the distance between the two points.

54. \((5,8),(2,4)\)

Decide whether the points are vertices of a right triangle.

55. \((0,0),(0,3),(4,0)\)