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GRADE	GRADED BY

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Course No.: MAT115BA



**Intermediate Algebra
Proctored Final Examination**

050170

Each solution is worth $4\frac{1}{2}$ points. Show all calculations.

1. Solve the following expression.

$$B = 6$$

$$5(B - 4) = 10$$

2. Solve the following equation for the variable
- L
- .

~~$$w = \left(\frac{p}{2}\right)$$~~

$$L = \left(\frac{p}{2}\right) - w$$

$$p = 2L + 2w$$

3. Complete the following table for the equation
- $y = x - 3$
- .

x	y
-1	-4
0	-3
4	1

4. Find the slope-intercept equation of the line passing through (1,2) with a slope of $m = 3$.

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(Continued on reverse side)

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5. Draw the graph of the following linear function and give the domain and range.

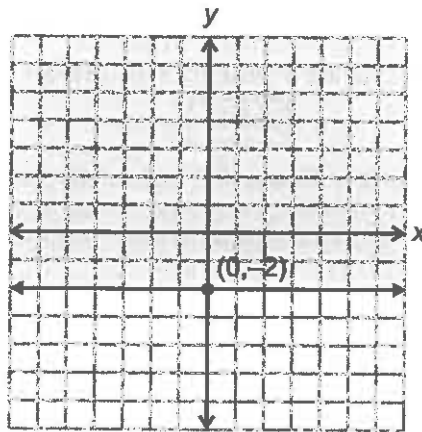
$$f(x) = -\frac{1}{2}x + 5$$

6. Solve the following equation.

$$x = 3$$

$$|x| = 3$$

7. Give the inequality whose graph is shown below.



8. Evaluate the following expression when $x = 3$ and $y = 2$.

$$-6$$

$$2xy - x^2y$$

9. Completely factor the following expression.

$$16x^4 - 81y^4$$

10. Perform the following division.

$$(y^2 + 10y + 21) \div (y + 7)$$

11. Solve the inequality below and write the solutions in interval notation.

$$|2m + 3| < 13$$

~~12.~~ Write the numeral 0.0685 in scientific notation.

~~13.~~ Given $f(x) = -6x - 1$, find $f(2)$.

14. Write the equation of the line with a slope of 2 and passing through the point $(-5, 3)$.

15. Simplify the following expression completely:

$$\left(\frac{ab^{-3}}{3a^{-2}b^2} \right)^2$$

16. Solve the system of equations given below.

$$x + 3z = 12$$

$$-x - 2y + z = 10$$

$$3x + 5y + 2z = -7$$

17. Do the following two lines intersect? Answer yes or no, together with the point of intersection, if any.

$$5x + 8y = -5$$

$$-x - 1.6y = 14$$

~~18.~~ Compute the determinant.

$$\begin{vmatrix} 4 & 0 & -1 \\ 3 & 6 & -2 \\ -2 & 5 & 1 \end{vmatrix}$$

19. Compute the distance between the two points $(1 - \sqrt{2}, -1)$ and $(2 + \sqrt{2}, 4)$.

20. Rationalize the denominator of $\frac{2\sqrt{7}}{x + \sqrt{7}}$.

21. At what x values does the parabola $y = x^2 - 5x + 4$ intersect the x axis?

~~22.~~ The surface area (A) of a sphere with radius (r) is given by $A = 4\pi r^2$. Solve this formula for r .