Each solution is worth $4^1/_2$ points. Show all calculations.

1. Solve the following expression.

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

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

$$p = 2L + 2w$$

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

x	*y*
−1	
0	
4	

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

(Continued on reverse side)

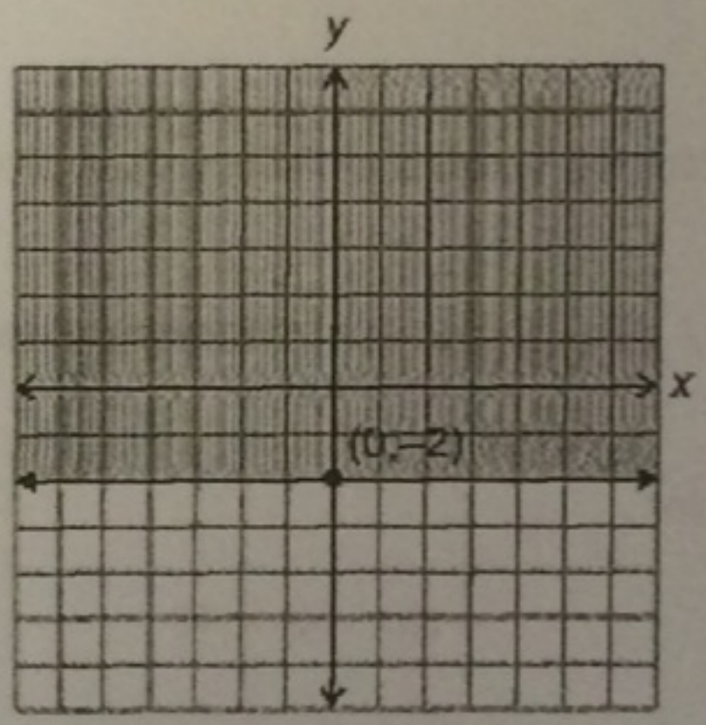
5. Draw the graph of the following linear function and give the domain and range.

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

6. Solve the following equation.

$$|x| = 3$$

7. Give the inequality whose graph is shown below.



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

$$2xy - x^2y$$

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 $\dfrac{2\sqrt{7}}{x+\sqrt{7}}$.

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.