BRONX COMMUNITY COLLEGE
of the City University of New York

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05   Exam 2

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Name: _____

Directions: Write your answers in the provided space. To get full credit you *must* show all your work. Simplify your answers whenever possible. Be certain to indicate your final answer clearly. **Each question is worth 4 points**

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1. Evaluate: $30 - 3^3 \div 9 \cdot 3$

   A. 29   B. 1   C. 21   D. -1

2. Write a mathematical statement that represent the following English statement:

   Seven less than three times a number is 53.

3. Find the number that satisfies the statement in Question 2.

4. Evaluate $a^2 - b^2$, when $a = 4$ and $b = -4$.

   A. 0   B. 32   C. -32 D. 16

5. Evaluate the expression $x^2 - x + y^2$, when $x = -3$ and $y = -2$.

6. Evaluate the expression $\dfrac{y_2 - y_1}{x_2 - x_1}$, when $x_1 = -2$, $x_2 = 5$, $y_1 = -7$, and $y_2 = -14$.

   A. $\dfrac{1}{3}$ B. $-\dfrac{1}{3}$ C. 1 D. -1

7. Solve for a: $3(5 - 2a) = 1 - 20a$
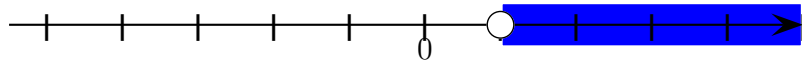
   A. $a = 1$ B. $a = -1$ C. $a = -\dfrac{7}{9}$ D. $a = \dfrac{7}{13}$

8. If n represents a number, which equation is correct translation of the sentence?

   15 is 12 less than 2 times a number.

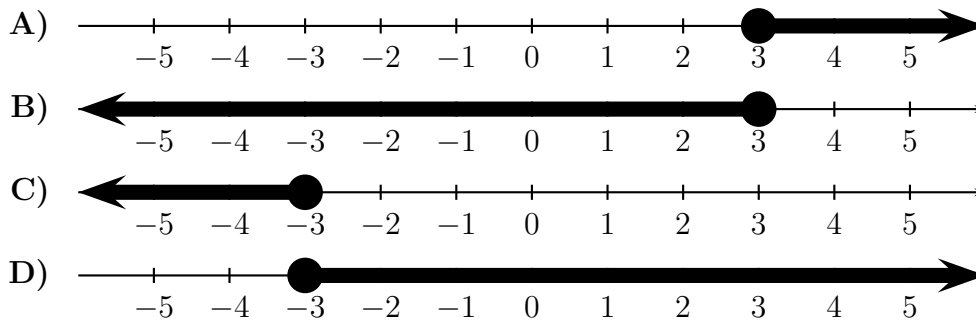   A. $15 = 12 - 2n$ B. $15 = 2(n - 12)$ C. $15 = 2n - 12$ D. $15 = 2(12 - n)$

9. The following is the graph of the solution set of a linear inequality.

   The inequality is:

   A. $x + 1 < 2$ B. $x + 1 > 2$ C. $x + 1 \le 2$ D. $x + 1 \ge 2$

10. Find the graph of the solution to the inequality $2x - 6 \ge 5x + 3$

11. Solve for z: $3x - 7z = 5 - 2y$

   A. $z = -7(3x + 2y - 5)$

   B. $z = \dfrac{3x + 2y - 5}{7}$

   C. $z = \dfrac{5 - 3x - 2y}{7}$

   D. $z = \dfrac{3x - 2y + 5}{7}$

12. Evaluate the expression $\sqrt{b^2 - 4ac}$, when $a = 4$, $b = -4$, $c = -3$.

13. Solve the equation: $\dfrac{x-2}{5} + \dfrac{8-x}{3} = x$

14. Solve the equation:
$$-2(3x - 1) = 5(x + 2) - 11x + 7$$

15. Find b if when $x = 2$, $y = -3$, and $m = 2$, the following equation is true:
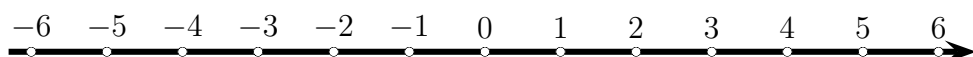
$$y = mx + b$$

16. Solve the following equation:
$$3(x + 7) - 8 = x + 3$$

17. Solve the following inequality, and graph the solution set in the provided graph.

$$9 - 2(2x + 3) < -7x - 3$$

The graph of the solution set is:

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

18. Solve the equation:
$$\frac{2x}{3} + 1 = \frac{x}{2}$$

19. Find y so that when $x = -2$ the following equation is true:
$$3x - 5y = 7$$

20. The length of a rectangle is 6 inches less than twice its width. Find the dimensions of the rectangle if its perimeter is 12 inches.

21. Solve for w: $V = lwh$.

22. The sum of three consecutive integers is 51. Find the integers.

23. Recall that the formula that converts degrees Fahrenheit F to degrees Celsius C:

$$C = \frac{5}{9}(F - 32)$$

The temperature of an object measured in degrees Celsius is 60 more than when it is measured in Fahrenheit. What is the temperature of the object?

24. $\dfrac{3}{2}$ is a solution of the equation $4x^2 - 4x - 3 = 0$

A. True   B. False

25. For a linear equation with one unknown both 0 and -7 are solutions. Which of the following must necessarily be true?

    A. There are no other solutions.

    B. -4 is also a solution.

    C. We can't know all solutions.

    D. This can't happen with a linear equation.