BRONX COMMUNITY COLLEGE
of the City University of New York

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05 — Exam 2
Nikos Apostolakis — October 9, 2016

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**

1. Evaluate: $20 - 2^3 \div 4 \cdot 2$

   A. 19 B. 16 C. 6 D. -6

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

   Eleven less than seven times a number is 59**.**

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

4. Evaluate $a^2 - b^2$, when $a = 3$ and $b = -3$.

   A. 18 B. -18 C. 0 D. 12

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

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 b: $3(5 - 2b) = 1 - 20b$

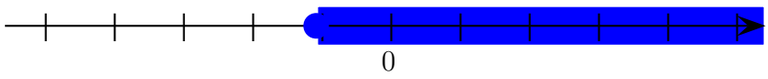
   A. $b = 1$ B. $b = -1$ C. $b = -\dfrac{7}{9}$ D. $b = \dfrac{7}{13}$

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

   12 is 7 less than 3 times a number.

   A. $12 = 7 - 3n$ B. $12 = 3(n - 7)$ C. $12 = 3n - 7$ D. $12 = 3(7 - n)$

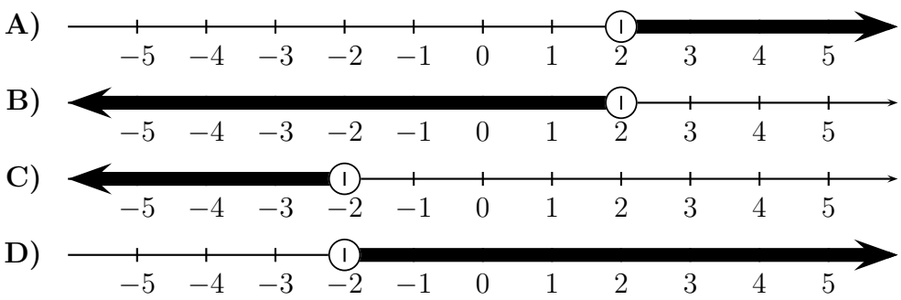
9. The following is the graph of the solution set of a linear inequality.



   The inequality is:

   A. $x + 2 < 1$ B. $x + 2 > 1$ C. $x + 2 \leq 1$ D. $x + 2 \geq 1$

10. Find the graph of the solution to the inequality $5x - 3 > 6x - 1$



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

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

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

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

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

12. Evaluate the expression $\sqrt{b^2 - 4ac}$, when $a = 6$, $b = -7$, $c = -3$.

13. Solve the equation: $\dfrac{x-2}{6} + \dfrac{2-x}{3} = \dfrac{x}{2}$

14. Solve the equation:

$$-2(3x - 1) = 5(x + 2) - 11x - 8$$

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

$$y = mx + b$$

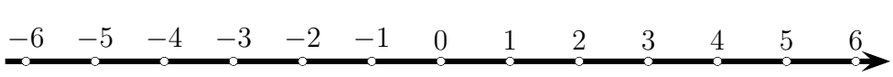
16. Solve the following equation:

$$3(x + 7) - 8 = x + 9$$

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

$$-7x - 3 \leq 9 - 2(2x + 3)$$

The graph of the solution set is:



18. Solve the equation:

$$\frac{3x}{2} + 1 = \frac{x}{3}$$

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

$$3x - 5y = 7$$

20. The length of a rectangle is 2 inches less than twice its width. Find the dimensions of the rectangle if its perimeter is 26 inches.

21. Solve for h: $\quad V = lwh - 3$.

22. The sum of two consecutive integers is 63. Find the integers.

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

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

One day the temperature measured in degrees Fahrenheit was the same as the temperature measured in degrees Celcius. What was the temperature that day?

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

A. True B. False

25. For a linear equation with one unknown 0 and -7 are solutions while -4 isn't. Which of the following must necessarily be true?

A. There are no other solutions.

B. 7 is also a solution.

C. We can't know all solutions.

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