BRONX COMMUNITY COLLEGE
of the City University of New York

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05   Practice Exam 1

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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 problem is worth 5 points**

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1. Evaluate: $2 \cdot (-4 - 3) - 3^2 \div 3 \cdot 3$
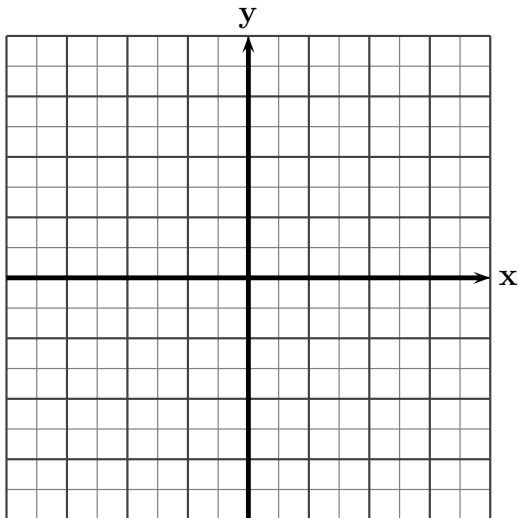
2. Let $f(x) = x^3 - 7x + 4$. Find both $f(0)$ and $f(-2)$.

3. Solve for x: $-2(4x - 5) = 3(2x + 6)$

4. Solve for y: $3x - 5y = 15$

5. Solve $-5x + 2 > 11$ and

    (a) graph the solution set

    (b) express the solution set in interval notation.

6. Solve for x: $|4x - 1| = 2$

7. Sketch the graph of $4x + 3y = 12$. Show the x and y intercepts.

8. Find an equation for the line that passes through the points $(2, -3)$ and $(5, 8)$.

9. Solve for x and y:
$$\begin{cases} 3x + y = -14 \\ 4x + 3y = -22 \end{cases}$$

10. Multiply and simplify: $(x - 1)(x^2 + x + 1)$

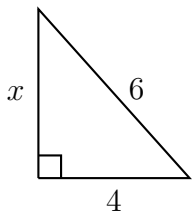11. Simplify: $\left(\dfrac{2xy^2}{z}\right)^3 (xyz^2)^2$

12. Simplify: $\dfrac{9x^3 - 42x^2}{3x^2}$

13. Divide $x^2 - 2x - 3$ by $x - 3$.

14. Solve for x: $\qquad 3x^2 - x - 2 = 0$

15. Factor completely: $\qquad 7x^3y^2 - 63xy^2$

16. Find the missing side length x and simplify your answer:

17. At 2 PM two buses leave a town heading in opposite directions. If one bus is traveling at 52 mph and the other at 64 mph, what time is it when they are 580 miles apart?

18. If a car gets 28 miles per gallon of gas, how many gallons of gas are needed to travel 40 miles?

19. Factor: $a^2b^2 - 3b^2 - 2a^2 + 6$

20. Simplify: $-\sqrt{63x^{16}y^2}$