

Borough of Manhattan Community College Department of Mathematics

MAT 012/051 Final /CUNY Examination Review

FORM C

NAME: _____

1. Simplify: $5\sqrt{7} + 2\sqrt{28} - 4\sqrt{63}$

2. Simplify completely: $\sqrt{\frac{30 \cdot 2}{5}}$

3. Perform the operation. Give the answer in scientific notation: $\frac{3 \times 10^4}{12 \times 10^6}$

4. Simplify: $\frac{4x^3x^{10}}{(2x^2)^3}$

5. Simplify: Add $7x^2 - 8x + 10$ to $-8x^2 + 2x - 12$

6. Multiply and simplify: $(5x - 4)(x^2 - 3x - 1)$

7. Simplify completely: $\frac{33y^4 + 55y^3 - 11y^2}{-11y^2}$

8. Factor completely: $25x^2 - 1$

9. Factor the trinomial completely: $3x^2 + 11x - 20$

10. Factor the polynomial: $6x^3 - 4x^2 + 15x - 10$

11. Write an equation: Four times a number subtracted from 16 is 22.

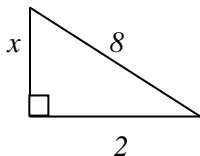
12. Solve for x : $\frac{x}{3} + 1 = \frac{x}{6}$

13. Solve the system:
$$\begin{cases} x - 6y = 3 \\ 4x + 3y = 21 \end{cases}$$

14. Solve for x : $z = 5x - y$

15. Find all solutions to the equations: $3x^2 = 15x$

16. Find all solutions to the equations: $2x^2 = 98$

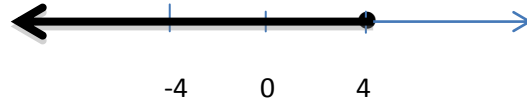
17. Find x and simplify your answer:

18. Solve the inequality and graph the solution: $4(x + 5) \geq 4(2x + 1)$
19. Evaluate: $f(-3)$ for the function $f(x) = \frac{x}{x+12}$
20. Find x - and y - intercepts and then use them to draw the graph: $-2x + 5y = 10$
21. Find the equation of the line passing through the points given below. Write the equation in the slope intercept form. $(0, 2)$ and $(3, -6)$
22. Find the equation of **i**) a horizontal line and **ii**) a vertical line that passes through the following point: $(4, -5)$
23. Find the slope and y - intercept for the graph of the equation: $3x - y = 4$
24. Solve the following proportion problems: Carol spends 17 hours in a 2-week period practicing her culinary skills. How many hours does she practice in 5 weeks?
25. Solve the following percent problems: A company advertises cereal in a new 24 - ounce box that contains 25% more cereal now. What was the original weight of the box?

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MAT 012/051 Form C Key for Final /CUNY Examination Review Form C

1. $-3\sqrt{7}$
2. $2\sqrt{3}$
3. 2.5×10^{-3}
4. $\frac{x^7}{2}$
5. $-x^2 - 6x - 2$
6. $5x^3 - 19x^2 + 7x + 4$
7. $-3y^2 - 5y + 1$
8. $(5x + 1)(5x - 1)$
9. $(3x - 4)(x + 5)$
10. $(2x^2 + 5)(3x - 2)$
11. $16 - 4x = 22$
12. $x = -6$
13. $x = 5, y = \frac{1}{3}$
14. $x = \frac{z+y}{5}$
15. $x = 0, x = 5$
16. $x = -7, x = 7$
17. $x = 2\sqrt{15}$
18. $x \leq 4$



19. $-\frac{1}{3}$
20. $x - \text{int}(-5, 0)$ and $y - \text{int}(0, 2)$
21. $y = -\frac{8}{3}x + 2$
22. i. $y = -5$ ii. $x = 4$
23. $m = 3$ and $y - \text{int}(0, -4)$
24. $\frac{85}{2}$ hours
25. 19.2 oz