

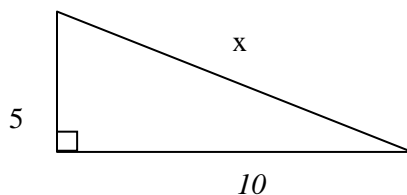
Borough of Manhattan Community College Department of Mathematics

MAT 012/051 Final /CUNY Examination Review

FORM D

NAME: _____

1. Simplify: $9 + 6\sqrt{2} + 2 - 18 + 3\sqrt{8}$
2. Simplify completely: $2\sqrt{3}(\sqrt{2} + \sqrt{3})$
3. Perform the operation. Give the answer in scientific notation: $(2.4 \times 10^2)(7 \times 10^{-8})$
4. Simplify: $\frac{(3x^{-3})^2 x^4}{x^2}$
5. Simplify: Subtract: $-2x^2 - 3x + 5$ from $4x^2 - 5x + 10$
6. Multiply and simplify: $(3x - 2)^2$
7. Simplify completely: $\frac{6x^2y^2 - 3xy}{6xy}$
8. Factor completely: $81y^4 - x^4$
9. Factor the trinomial completely: $8y^2 + 13y - 6$
10. Factor the polynomial: $10ax - 15ab + 12xy - 18by$
11. Write an equation: Ten more than the product of 4 and a number is 14.
12. Solve for x : $2(3x - 1) - (4x - 5) = 4x - 7$
13. Solve the system: $\begin{cases} 4x + 3y = 11 \\ 3x - 7y = -1 \end{cases}$
14. Solve for x : $p = 4y + 4x$
15. Find all solutions to the equations: $3m^2 = 20 - 7m$
16. Find all solutions to the equations: $3x^2 = 48$
17. Find x and simplify your answer:



18. Solve the inequality and graph the solution: $8 - 6(x - 3) \leq -4x + 12$
19. Evaluate: $f(2)$ for the function $f(x) = -3x^2 + 2x - 4$
20. Find x - and y - intercepts and then use them to draw the graph: $y = -3$
21. Find the equation of the line passing through the points given below. Write the equation in the slope intercept form. $(-3, 0)$ and $(1, -2)$
22. Find the equation of **i**) a horizontal line and **ii**) a vertical line that passes through the following point: $(5, 0)$
23. Find the slope and y - intercept for the graph of the equation: $-2x - 6y = 12$
24. Solve the following proportion problems: A worker can complete the assembly of 15 tape players in 6 hours. At this rate, how many can the worker complete in a 40-hour work week?
25. Solve the following percent problems: Maria received \$150 in simple annual interest at rate of 5% on her CD. How much did she invest in the CD?

1. $-7 + 12\sqrt{2}$
2. $6 + 2\sqrt{6}$
3. 1.68×10^{-5}
4. $\frac{9}{x^4}$
5. $6x^2 - 2x + 5$
6. $9x^2 - 12x + 4$
7. $xy - \frac{1}{2}$
8. $(9y^2 + x^2)(3y + x)(3y - x)$
9. $(8y - 3)(y + 2)$
10. $(2x - 3b)(5a + 6y)$
11. $4x + 10 = 14$
12. $x = 5$
13. $x = 2, y = 1$
14. $\frac{p-4y}{4}$
15. $m = -4$ or $m = \frac{5}{3}$
16. $x = 4$ or $x = -4$
17. $x = 5\sqrt{5}$
18. $x \geq 7$



19. -12
20. y- intercept: $(0, -3)$ and x- intercept: None
21. $y = -\frac{1}{2}x - \frac{3}{2}$
22. i) $y = 0$ ii) $x = 5$
23. $m = -\frac{1}{3}$, y- intercept: $(0, -2)$
24. 100 tape players
25. Maria invested \$3,000