

Name: _____

M\$5 Exam 4 PRACTICE

1. Simplify: $\frac{xy - \frac{1}{xy}}{\frac{xy+1}{x^2y^2}}$
2. Express in simplest form: $\frac{4x+8}{x+1} \cdot \frac{2-x}{3x-15} \div \frac{x^2-4}{2x^2-8x-10}$
3. Let $f(x) = 4x^2 - 1$ and $g(x) = \frac{x+2}{3}$
 - a) Find the value of $(f \circ g)(7)$.
 - b) Express $(g \circ f)(x)$ in simplest form.
 - c) Find the value of $(g \circ g^{-1})(3)$.
4. State the domain of $f(x) = \frac{x^2 - 3x + 2}{x^2 - 9}$
5. Express in simplest radical form: $\frac{1}{2}\sqrt{80} + 2\sqrt{45} - 10\sqrt{\frac{1}{5}}$
6. One root of a quadratic equation is $3 + \sqrt{2}i$. Determine the other root and write the equation which has these values as roots.
7. Express the multiplicative inverse of $5 - 7i$ in $a + bi$ form.
8. Solve: $\sqrt{2x^2 + 1} = x + 1$
9. In what quadrant does the sum of $6 - 5i$ and $4 + 6i$ lie?
10. What is the positive value of m in the equation $4x^2 + mx + 9 = 0$ which makes the roots of the equation real, equal, and rational?
 - (1) 12
 - (2) 9
 - (3) 3
 - (4) 4
11. The roots of the quadratic equation $4x^2 = 2 + 7x$ are best described as
 - (1) real, equal, and rational
 - (2) imaginary
 - (3) real, unequal, and irrational
 - (4) real, unequal, and rational
12. If $f(x) = x - 10$ and $g(x) = 10 - 2x$ and $f(x) = g(x) + 10$, then x is
 - (1) 1
 - (2) 10
 - (3) -1
 - (4) -10
13. If $R = \{(-2, 3), (a, 4), (1, 9), (0, 7)\}$, which replacement for a makes this relation a function?
 - (1) 1
 - (2) -2
 - (3) 0
 - (4) 4
14. In the set of complex numbers, $(3 + 2i)(2 - 5i) = 4c + di$. Find the values of *both* c and d .