

MRS21 – Algebra 2/Trigonometry
Exam 1 Review Sheet

Topics:

- Operations with Polynomials
- Dividing a Polynomial by a Monomial
- Factoring Polynomials Completely
 - GCF, Difference of Two Perfect Squares, Trinomial Factoring, & Factoring by Grouping
- Simplifying Rational Expressions
- Multiplying and Dividing Rational Expressions
- Adding and Subtracting Rational Expressions with Like Denominators

Be sure to thoroughly prepare for the exam by reviewing (and re-doing) problems in your class notes and homework assignments.

Practice Problems:

1. Express $(7x-1)^2$ as a trinomial.
2. Express in simplest form: $\frac{45a^4b^3 - 90a^3b}{15a^2b}$
3. Expressed in simplest form, $(3x^3)(2y)^2(4x^4)$ is equivalent to
 - (1) $24x^{12}y^2$
 - (2) $24x^7y^2$
 - (3) $48x^{12}y^2$
 - (4) $48x^7y^2$

In 4 – 7, perform the indicated operations and simplify the result.

4. $(2x+3)(x^2 - 7x+2)$
5. $(-7x)^2 - 5x + 2x(x-6)$
6. $(9x^5 + 8x^3 - 7y) - (10x^3 + y - x^5)$
7. $-(-3x)^2 - (x+3)^2$
8. The greatest common monomial factor of $12x^2$ and $8x^3$ is
 - (1) $8x^3$
 - (2) $4x^2$
 - (3) $96x^5$
 - (4) $12x^2$
9. Factored completely, the expression $12x^4 + 10x^3 - 12x^2$ is equivalent to
 - (1) $x^2(4x+6)(3x-2)$
 - (2) $2(2x^2+3x)(3x^2-2x)$
 - (3) $2x^2(2x-3)(3x+2)$
 - (4) $2x^2(2x+3)(3x-2)$
10. Factor completely:
 - (a) $10ax^2 - 23ax - 5a$
 - (b) $12t^8 - 75t^4$
 - (c) $x^3 + 3x^2 - 4x - 12$
 - (d) $ax - ay - bx + by$

11. Express in simplest form:

(a) $\frac{x^3y - x^2y^2}{xy^3 - x^2y^2}$	(b) $\frac{4x^2 - 100}{x^2 + x - 6} \div \frac{20 - 4x}{2x^2 - 9x + 10}$
(c) $\frac{x^2 - 3x}{2x^2 + x - 6} \cdot \frac{x^2 - 4}{x^2 - 5x + 6}$	(d) $\frac{x^2 - 9}{2x - 8} \div \frac{6 - 2x}{x - 4}$

12. Combine and simplify:

(a) $\frac{x^2}{x-3} + \frac{9}{3-x}$	(b) $\frac{d^2+8}{d^3-d} - \frac{8-d}{d^3-d}$
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