

Math 103
Exam #2
Summer '09

Name:

1. 10 pts. Find the slope of the line through $(-2, 7)$ and $(3, -1)$.
2. 10 pts. Find the slope of the line $5x - 2y = 8$ and sketch the graph.
3. 10 pts. Using algebra (not a graph), determine whether the lines $2x + 5y = -7$ and $5x - 2y = 1$ are parallel, perpendicular, or neither.
4. 10 pts. Find an equation of the line through $(-4, 2)$ that has slope $\frac{1}{3}$. Write the equation in slope-intercept form and standard form.
5. 10 pts. Find an equation of the line through $(-1, 3)$ that is parallel to $3x - y = 8$. Write the equation in slope-intercept form.
6. 10 pts. each Simplify each expression so that no negative exponents appear in the final result.
 - (a) $5w^{-3}$
 - (b) $(x^5)^{-4}x^{10}$
 - (c) $\frac{(2k)^2m^{-5}}{(km)^{-3}}$
7. 10 pts. Subtract $(3r + 8) - (2r - 5)$.
8. 10 pts. Add $(2x^5 - 2x^4 + x^3 - 1) + (x^4 - 3x^3 + 2)$.
9. 10 pts. each Find each product.
 - (a) $2x^5y^3(-3x^3y)$
 - (b) $(z - w)(3z + 4w)$
 - (c) $(2n + 3)(3n^2 - 4n - 1)$
10. 10 pts. each Divide.
 - (a) $\frac{64x^3 - 72x^2 + 12x}{8x^3}$
 - (b) $\frac{p^3 + 3p^2 - 4}{p + 2}$
 - (c) $\frac{9k^4 + 12k^3 - 4k - 1}{3k^2 - 1}$
11. 10 pts. Factor out the greatest common factor for $16z^2n^6 + 64zn^7 - 32z^3n^3$.
12. 10 pts. Factor by grouping: $10m + 2q + 5mk + qk$.
13. 10 pts. each Factor completely. Note: *none* of the polynomials are prime!
 - (a) $z^2 + 2z - 24$
 - (b) $8r^2 + 34r + 35$
 - (c) $14c^2 - 17cd - 6d^2$
 - (d) $18a^2 - 98b^2$
 - (e) $343h^3 + 125u^3$
 - (f) $16m^2 - 8m + 1 - n^2$