

Simplify the following.

Then put the resulting polynomial in descending order, state its degree and leading coefficient, and classify the polynomial by the number of terms.

1. $(-5x + 7x^2 + 6x^3) - (-8x^2 + 14x^3 - 10x)$

Circle one of the following:

Monomial Binomial Trinomial Polynomial

Degree: _____

Leading Coefficient: _____

2. State whether the following are polynomials in one variable. If they are not, explain why.

a. $8x^2 + 9x - 17x^5$

b. $-12xy - 2x + 3y$

c. $15x^{-3} + 11x^2 - 19$

d. $6x^2 + \frac{1}{3}x - 7$

3. Simplify the following:

a. $(4 - 9i)^2$

b. $-3(5 - 2i) + 4i(6i - 3)$

c. $(8 - 5i) - (-4 + 2i)$

d. $(-2 + 7i)(6 - 13i)$

4. Factor then solve.

a. $y = x^2 - 3x - 108$

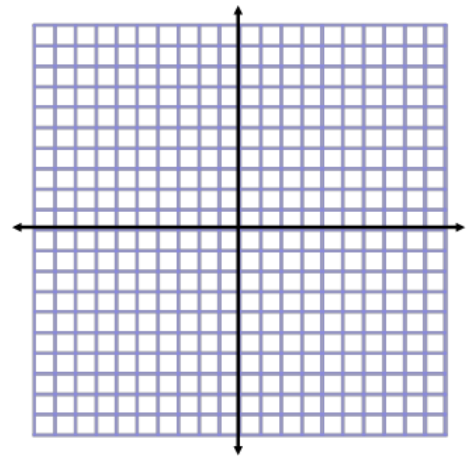
b. $y = 12x^2 - 29x + 14$

5. Solve for the roots by using the quadratic formula. $y = 3x^2 - 4x + 7$

6. $y = -16x^2 + 32x + 3$ represents the path of a softball as it leaves the bat and heads out to the outfield. How high does the ball get in the air?

7. Given: $y = -(x - 3)(x + 2)$

- a. Is the equation above in standard, factored, or vertex form?
- b. List the x-intercepts.
- c. Give the coordinates of the vertex.
- d. Name the y-intercept.
- e. Sketch the graph



8. Sketch a polynomial given the degree and number of real roots. If the polynomial cannot be drawn, explain why.

a. Degree 7, 3 real roots, LC -

b. Degree 13, 6 real roots, LC +

c. Degree 11, 9 real roots, LC +

