

Determine if each of the following are polynomials. If not, explain why not.

1. $\frac{1}{2}x^3 + 2x - x^2 + 4$

2. $x^3y + 2x - 5y^{1/2} + 3$

3. $\frac{1}{x} + 3y - 7$

4. $x^{27} + 3y^2 + 2x - 7$

For each of the following:

- a) Find the degree of each term
- b) Find the degree of the polynomial
- c) Write the polynomial so that the powers of x are decreasing

5. $3xy^2 - 2x^2 + 3 - 4x^4$

6. $2x + \frac{4}{5}x^2 + 4x^4 - x^3y + 2ry$

7. $7xy + 3x^2y^3 - 5x^4y - 72$

8. $3x^2 - 2 + 4x^4 - 4x$

9. $3 - 2xy - 4x^2 + 6x^4 - x^3 + 7x^6z$

10. $\frac{1}{4}xy + 7y - 2rzx^2 + x^3 - \frac{1}{3}x^4$