

More Practice: Polynomials

Is the following a polynomial?

1. $\frac{1}{x}$

No

2. $z^2\sqrt{5}$

Yes

3. $-3x^2y + 5w^7$

Yes

4. $|xyz|$

No

5. $6x^{-3}$

No

State the degree of the following polynomials:

6. $8x^5 - 2x^3 + x$

5

7. $3x^2y^3z^4 + 2x^4y^7 + 4x^{10}$

(9) (11) (10)

11

8. $1000z^5 - w^6$

6

Simplify

9. $(3x^2 + x - 6) + (x^3 - x + 8)$

$x^3 + 3x^2 + 2$

10. $(7x^2 - 5x + 2) - (3x^2 - 2x + 4)$

$4x^2 - 3x - 2$

11. $(x + 8)(x - 1)$

$x^2 - x + 8x - 8 = x^2 + 7x - 8$

12. $(x^4 + 5x^2)(x^2 - 9)$

$x^6 - 9x^4 + 5x^4 - 45x^2 = x^6 - 4x^4 - 45x^2$

13. $(x^2 - 4x + 3)(x - 2)$

$x^2 - 4x + 3$
 $\times \quad x - 2$
 $\hline -2x^2 + 8x - 6$
 $+ \quad x^3 - 4x + 3x$
 $\hline x^3 - 6x^2 + 11x - 6$

14. $(x^2 - 4)(x + 2) - (2x - 1)(x + 7)$

$(x^3 + 2x^2 - 4x - 8) - (2x^2 + 14x - 1x - 7)$
 $(x^3 + 2x^2 - 4x - 8) - (2x^2 + 13x - 7) = x^3 - 17x - 1$