

Review 9.1-9.8

Show all necessary work!

Tell whether each of the following is a monomial, binomial or trinomial, or not a polynomial. If not, then state why.

1. $4x^3 + 5x$

2. $3^x + 4x$

3. $\frac{1}{x^2}$

4. 1

if not, why?

if not, why?

if not, why?

if not, why?

5. Use the polynomial $-x^3 - 6x^4 - 3x^2 + 15$ to answer the following questions.

a) Write the expression in standard form.

b) What is the degree of the polynomial?

c) What is the coefficient of the x^2 term?

d) What is the constant term?

Simplify each and write in standard form.

6. $(5x - 2) + (3x^2 - 4x + 1)$

7. $(2x^5 - 6x^3 + 2x^2 - 1) - (6x^3 - 4x + 3x^2)$

8. $(3x + 2)(4x^2 - 5x + 2)$

9. $3r^3(4r^3 + 4r - 2)$

10. $(x + 7)^2$

11. $(2x - 3)(2x + 3)$

Factor the following expressions.

12. $4x^3 + 12x^2$

13. $5p^2q^3 + 10q^2p$

14. $x^2 + 5x + 6$

15. $x^2 - 6x + 8$

16. $x^2 + 2x$

17. $x^2 + 2x + 4$

Factor the following completely! *remember to factor out a common monomial before you factor. If a is negative, you should factor out a -1 from all terms.

18) $-2x^2 - 5x - 3$

19) $-5m^2 + 6m - 1$

20) $2x^2 - 3x - 35$

21) $-16x^2 + 8x + 24$

22) $x^2 - 9$

23) $49x^2 - 81$

24) $5x^3 - 40x^2 + 80x$

25) $2x^4 + 21x^3 + 49x^2$

Answer Key

- 1) Binomial 2) Not a polynomial - variable in exponent 3) Not a polynomial - division by variable
- 4) Monomial 5a) $-6x^4 - x^3 - 3x^2 + 15$ 5b) Fourth Degree 5c) -3 5d) 15
- 6) $3x^2 + x - 1$ 7) $2x^5 - 12x^3 - x^2 + 4x - 1$ 8) $12x^3 - 7x^2 - 4x + 4$ 9) $12r^6 + 12r^4 - 6r^3$
- 10) $x^2 + 14x + 49$ 11) $4x^2 - 9$ 12) $4x^2(x + 3)$ 13) $5pq^2(pq + 2)$
- 14) $(x + 2)(x + 3)$ 15) $(x - 2)(x - 4)$ 16) $x(x + 2)$ 17) Not Factorable!
- 18) $-1(x+1)(2x+3)$ [GCF was -1] 19) $(-m + 1)(5m - 1)$ or $(m - 1)(-5m + 1)$ 20) $(x - 5)(2x + 7)$
- 21) $-8(x+1)(2x-3)$ or $8(-x-1)(2x-3)$ or $8(x+1)(-2x+3)$ 22) $(x - 3)(x + 3)$ 23) $(7x - 9)(7x + 9)$
- 24) $5x(x - 4)^2$ 25) $x^2(x + 7)(2x + 7)$