APR.1 2.3

Practice with Polynomials

Key

1. How do you determine the number of terms a polynomial has?

Count pieces separated by + or − sign

2. How do you determine the degree of a polynomial?

Biggest exponent on variable

3. Write a trinomial with a degree of 5.

$4x^5 - 3x^2 + 7x$

4. State whether the following are polynomials in one variable. If they are not, explain why. (Exponents must be + integer exponents)

a. $3x^3 - x^{\frac{1}{2}} + 17$ ← not integer

No

b. $7 - x$

Yes

c. $a^2 + 2ab + b^2$

No, 2 variables

d. $6x^4 + 3x^3 - 4x + 3$

Yes

e. $c^2 + c + \frac{1}{c}$ ← that's c^{-1}

Negative exponent

No

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.

5. $(3x^2 - x + 2) + (x^2 + 4x - 9)$ $4x^2 + 3x - 7$	**Circle one of the following:** Monomial Binomial (Trinomial) Polynomial Degree: 2 Leading Coefficient: 4
6. $(16 + 9r^2 + 6r) - (-7r + 8r^2 - 10)$ $r^2 + 13r + 26$	**Circle one of the following:** Monomial Binomial (Trinomial) Polynomial Degree: 2 Leading Coefficient: 1
7. $(x + 4x^3 + 5 + 3x^2) + (7 - 4x + 3x^3)$ $7x^3 + 3x^2 - 3x + 12$	**Circle one of the following:** Monomial Binomial Trinomial (Polynomial) Degree: 3 Leading Coefficient: 7
8. $(5y^4 - 2 - 6y) - (6y^4 + -4y^2 + 3y^3)$ $-1y^4 - 3y^3 + 4y^2 - 6y - 2$	**Circle one of the following:** Monomial Binomial Trinomial (Polynomial) Degree: 4 Leading Coefficient: -1
9. $(2x + 4 + 3x^2)(x - 6)$ $2x^2 - 12x + 4x - 24 + 3x^3 - 18x^2$ $3x^3 - 16x^2 - 8x - 24$	**Circle one of the following:** Monomial Binomial Trinomial (Polynomial) Degree: 3 Leading Coefficient: 3
10. $(2x^2 + 3x - 7)(3x^2 - 4x - 5)$ $6x^4 - 8x^3 - 10x^2 + 9x^3 - 12x^2 - 15x$ $-21x^2 + 28x + 35$ $6x^4 + 1x^3 - 43x^2 + 13x + 35$	**Circle one of the following:** Monomial Binomial Trinomial (Polynomial) Degree: 4 Leading Coefficient: 6