

Alg 2 Quiz #3 Review Sec 6-1 to 6-3 Fall 2018

1. Is each a polynomial. If not circle the part(s) of the equation or explain why it is not.

- a) $y = -4x^2 - 6x$ b) $f(x) = 7\sqrt{x} + 3x^5$ c) $y = 6x^4 - 7x^{-2} + 3$ d) $f(x) = 3x^{\frac{1}{2}} + 2x$
 e) $y = -2.67x^2 - 7x + \sqrt{3}$ f) $f(x) = 9x^4 + \frac{5}{x^3} - 8x^2$ g) $y = 2x^2 - 3ix + 8$

2. Name each polynomial by its degree and by the number of terms.

- a) $f(x) = 9x^3$ b) $y = 7x^2 - 6x + 1$ c) $f(x) = 4x + 10$ d) 23

3. State the actual degree and leading coefficient of each polynomial as a number, not just odd/even or pos/neg.

- a) $y = 7x^4 - 8x^3 + 4x^5 - 9x^2 + 13x - 7x^5 + 3$ b) $y = 3x^2(x+7)(4-2x)^3(5x-1)^2$
 c) $f(x) = x(5x+6)^3(2x-3)(3x+7)^2$

4. State the degree, leading coefficient, and the end behavior of each polynomial. For degree state Odd/Even and for Leading Coef state Pos/Neg.

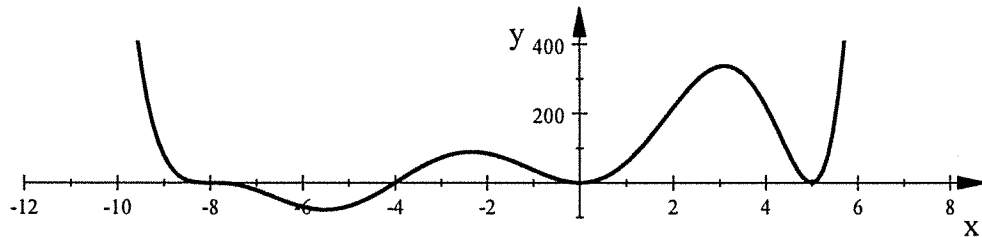
- a) $y = 6x^3 - 9x^2 - 2x + 1$ b) $f(x) = 2x(7x-3)^2(x+2)^3(x-1)^2$
 c) $y = 7x^3 - 19x - 3x^4 + 3$ d) $f(x) = (2x+7)^2(2-x)^3(5x+4)^2$

5. Sketch each function showing the proper end behavior and shape at each zero. Identify each zero with a number.

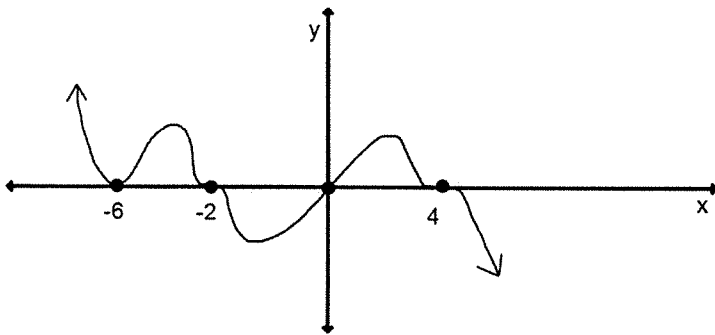
- a) $f(x) = x^2(x+6)^3(4-x)(x-8)^2$ b) $y = (x+2)^2(2x-7)(x-8)^2$

6. Write the given kind of equation for each polynomial shown below in factored form.

a. A possible equation.



b. The EXACT equation, with the correct value of a , given the polynomial passes through this point (1, 107163).



7. Use the given zeros to write a possible equation of the polynomial in **STANDARD FORM**:

Zeros: -2(single zero), 2(single zero), and 5(double zero)

8. Find all Real solutions by graphing. Round to the nearest hundredth.

- a) $x^4 - 8x^2 + 16 = -x^2 + 4x - 1$ b) $x^3 + 2x^2 - 19x - 21 = 0$

9. Find the coordinates of all absolute and relative extrema, if any. $y = 0.5x^4 - 4x^3 + 8.5x^2 - 4x + 3$

10. Find each quotient. You can give the remainder in any form that you wish.

a) $\frac{2x^3 + 16x^2 + 29x - 8}{x + 5}$ b) $\frac{2x^3 + 9x^2 + 5x - 6}{2x + 3}$ c) $\frac{7x^3 + 4x - 9}{x - 2}$ d) $\frac{8x^3 - 2x^2 - 28x + 9}{4x - 1}$

11. Determine if each polynomial is a factor of $x^3 + 5x^2 - 2x - 24$.

a) $x + 6$ b) $x - 2$ c) $x + 4$

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ANSWERS

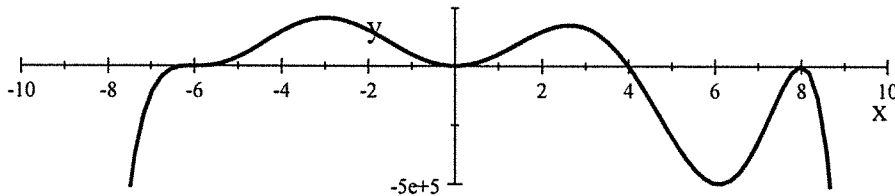
1. a) Yes b) No (variable under radical) c) No (negative exponent) d) No (fractional exponent)
e) Yes f) No (variable in the denominator) g) No (imaginary coefficient)

2. Name by degree Name by # of terms

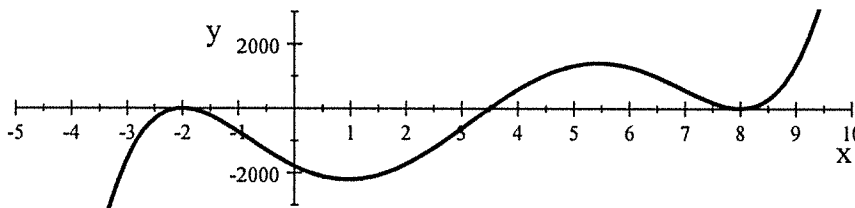
- a) Cubic Monomial
b) Quadratic Trinomial
c) Linear Binomial
d) Constant Monomial

3. a) Deg = 5 LC = -3 b) Deg = 8 LC = -600 c) Deg = 7 LC = 2250

4. a) Deg: ODD LC: POS End-Behavior ($\nearrow, \nearrow$)
b) Deg: EVEN LC: POS End Behavior ($\nwarrow, \nearrow$)
c) Deg: EVEN LC: NEG End Behavior ($\swarrow, \swarrow$)
d) Deg: ODD LC: NEG End Behavior ($\nwarrow, \swarrow$)



5. a)



5. b)

6. a) $y = x^2(x - 5)^2(x + 4)(x + 8)^3$ b) $y = -3x(x + 6)^2(x + 2)^3(x - 4)^3$

7. $y = x^4 - 10x^3 + 21x^2 + 40x - 100$

8. a) $x = 1.53, 2.39$ b) $x = -4.97, -1.05, 4.02$

9. Abs Max: NONE Rel Max: (1.71, 5.29) Abs Min: (4, -5) Rel Min: (0.29, 2.46)

10. Find each quotient. You can give the remainder in any form that you wish.

a) $2x^2 + 6x - 1$ $R = -3$ b) $x^2 + 3x - 2$
c) $7x^2 + 14x + 32$ $R = 55$ d) $2x^2 - 7$ $R = 2$

11. a) No b) Yes c) Yes