C Level Questions

1.   Perform each operation below and write:

i.   the polynomial in Standard Form   ii. the degree of the polynomial   iii. the leading coefficient.

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

      c. $(x - 6)(x^2 + 3x - 4)$ d. $\dfrac{x^3 + 7x^2 + 9x - 2}{x + 2}$

2.   Factor each polynomial fully.

a. $x^2 + 6x - 16$ b. $2x^2 + 7x - 15$ c. $(x^2 - 1)(x^2 - 4)$

A/B Level Questions

3.   a.   Show that $\frac{x^4-1}{x-1} = (x+1)(x^2+1)$

      b.   Show that $\frac{x^4-16}{x-2} = (x+2)(x^2+4)$

      c.   Without using an area model, make a conjecture for $\frac{x^4-81}{x-3}$.

      d.   Hence, what does $(x-n)(x+n)(x^2+n^2) = ?$

4.   Jake takes a job as a financial analyst. He has been following a tech company that his firm is considering buying. The profits for the tech company over the last three years can be modeled with the polynomial $p(x) = (x-24)(x^2-10x+16)$, where x = months since January 2013 and y = monthly profit in $1000.

      a.   What is the constant for the polynomial and what does it tell you about the tech company?

      b.   Find all months in which the company earned zero profit.

CCSS Algebra 4   AA6: Polynomial Functions Quiz 1B Name _____

C Level Questions

1.   Perform each operation below and write:

i.   the polynomial in Standard Form   ii. the degree of the polynomial   iii. the leading coefficient.

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

c. $(x - 6)(x^2 - 4x + 3)$ d. $\dfrac{x^3 - 4x^2 - 17x + 60}{x - 3}$

2.   Factor each polynomial:

a. $x^2 + 5x - 66$ b. $3x^2 + 11x - 4$ c.   c. $(x^2 - 9)(x^2 - 1)$

A/B Level Questions

3.   a.   Show that $\frac{x^4-1}{x-1} = (x+1)(x^2+1)$

   b.   Show that $\frac{x^4-16}{x-2} = (x+2)(x^2+4)$

   c.   Without using an area model, make a conjecture for $\frac{x^4-81}{x-3}$.

   d.   Hence, what does $(x-n)(x+n)(x^2+n^2) =?$

4.   Jake takes a job as a financial analyst. He has been following a tech company that his firm is considering buying. The profits for the tech company over the last three years can be modeled with the polynomial $p(x) = (x-25)(x^2-10x+21)$,where x = months since January 2013 and y = monthly profit in $1000.

   a.   What is the constant for the polynomial and what does it tell you about the tech company?

   b.   Find all months in which the company earned zero profit.

C Level Questions

1. Perform each operation below and write:
i. the polynomial in Standard Form   ii. the degree of the polynomial   iii. the leading coefficient.

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

c. $(x + 2)(x^2 - 5x + 4)$ d. $\dfrac{x^3 - 11x^2 - 2x + 120}{x - 4}$

2. Factor each polynomial:

a. $x^2 + 4x - 32$ b. $2x^2 - 13x + 20$ c. $(x^2 - 25)(x^2 - 4)$

A/B Level Questions

3.   a.   Show that $\frac{x^4-1}{x-1} = (x+1)(x^2+1)$

      b.   Show that $\frac{x^4-16}{x-2} = (x+2)(x^2+4)$

      c.   Without using an area model, make a conjecture for $\frac{x^4-81}{x-3}$.

      d.   Hence, what does $(x-n)(x+n)(x^2+n^2) =?$

4.   Jake takes a job as a financial analyst. He has been following a tech company that his firm is considering buying. The profits for the tech company over the last three years can be modeled with the polynomial $p(x) = (x-22)(x^2-12x+32)$,where x = months since January 2013 and y = monthly profit in $1000.

      a.   What is the constant for the polynomial and what does it tell you about the tech company?

      b.   Find all the months in which the company earned zero profit.

C Level Questions

1.   Perform each operation below and write:
i.   the polynomial in Standard Form   ii. the degree of the polynomial   iii. the leading coefficient.

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

     c. $(x + 4)(x^2 - 5x - 6)$ d. $\dfrac{x^3 - 11x^2 - 2x + 120}{x + 3}$

2.   Factor each polynomial:
a. $x^2 + 5x - 36$ b. $2x^2 - 9x - 18$ c. $(x^2 - 25)(x^2 - 16)$

A/B Level Questions

3.   a.   Show that $\frac{x^4-1}{x-1} = (x+1)(x^2+1)$

     b.   Show that $\frac{x^4-16}{x-2} = (x+2)(x^2+4)$

     c.   Without using an area model, make a conjecture for $\frac{x^4-81}{x-3}$.

     d.   Hence, what does $(x-n)(x+n)(x^2+n^2) = ?$

4.   Jake takes a job as a financial analyst. He has been following a tech company that his firm is considering buying. The profits for the tech company over the last three years can be modeled with the polynomial $p(x) = (x-23)(x^2-14x+24)$, where x = months since January 2013 and y = monthly profit in $1000.

     a.   What is the constant for the polynomial and what does it tell you about the tech company?

     b.   Find all the months in which the company earned zero profit.