Algebra 1 Name Key

WS PC #1 Review (7.1 - 7.3)

Find each product. Write your answer in standard form. Then, classify the polynomial and state the leading coefficient.

1) $(2n+8)^2$

$(2n+8)(2n+8)$

$4n^2+16n+16n+64$

$4n^2+32n+64$

Quadratic Trinomial LC = 4

2) $(8r-4)(8r+4)$

$64r^2+32r-32r-16$

$64r^2-16$

Quadratic Binomial LC = 64

3) $(8a+8)(7a+2)$

$56a^2+16a+56a+16$

$56a^2+72a+16$

Quadratic Trinomial

LC = 56

4) $(4r+7)(5r^2-r+1)$

$20r^3-4r^2+4r+35r^2-7r+7$

$20r^3+31r^2-3r+7$

Cubic Polynomial

LC = 20

Simplify each expression. Write your answer in standard form. Then, classify the polynomial and state the leading coefficient.

5) $(n^2-8n-7)-(5n^4-6n^2+3n)$

$n^2-8n-7-5n^4+6n^2-3n$

$-5n^4+7n^2-11n-7$

Quartic Polynomial

LC = -5

6) $(8n^3+3n^2)-(4n^3-8n-5)+(8n^3-n)$

$8n^3+3n^2-4n^3+8n+5+8n^3-n$

$12n^3+3n^2+7n+5$

Cubic Polynomial

LC = 12

7) A rectangle has a length of $3x^2-2x+1$ and a width of $2x^2+5x$. Write a polynomial expression to represent the perimeter of the rectangle and write an expression to represent the area of the rectangle.

$P = 2(3x^2-2x+1)+2(2x^2+5x)$

$P = 6x^2-4x+2+4x^2+10x$

$P = 10x^2+6x+2$

$A = l \cdot w$

$A = (3x^2-2x+1)(2x^2+5x)$

$A = 6x^4+15x^3-4x^3-10x^2+2x^2+5x$

$A = 6x^4+11x^3-8x^2+5x$

8) A square has side lengths of $4x-3$ units. Write a polynomial expression to represent the perimeter of the square and write an expression to represent the area of the square.

$P = 4(4x-3)$

$P = 16x-12$

$A = s^2$

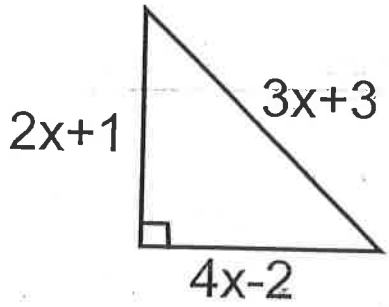
$A = (4x-3)^2$

$A = (4x-3)(4x-3)$

$A = 16x^2-12x-12x+9$

$A = 16x^2-24x+9$

9) Using the triangle, write a polynomial expression to represent the perimeter and write a polynomial expression to represent the area. (Remember: $A = \frac{1}{2}b \cdot h$)



$P = (2x+1) + (3x+3) + (4x-2)$

$P = 9x + 2$

$A = \frac{1}{2}(b)(h)$

$A = \frac{1}{2}(4x-2)(2x+1)$

$A = (2x-1)(2x+1)$

$A = 4x^2 + 2x - 2x - 1$

$A = 4x^2 - 1$

10) A triangle has side lengths of $2x + 3$, $3x - 7$, and $x + 1$. If the perimeter of the triangle is 27 inches, find x.

$2x + 3 + 3x - 7 + x + 1 = 27$

$6x - 3 = 27$

$6x = 30$

$x = 5$

The equation $h = -16t^2 + v_0t + s_0$ represents the height of a falling object, where t represents time in seconds, v_0 represents the initial vertical velocity in feet per second, and s_0 represents the initial height in feet.

11) A basketball is thrown down from the window of a building 180 feet tall with an initial velocity of 20 feet per second.

a) Write a polynomial that represents the height of the object.

$h = -16t^2 - 20t + 180$

b) Find the height of the object after 1 second.

$h = -16(1)^2 - 20(1) + 180$

$h = 144$ feet

12) Another basketball is thrown up from the ground. The polynomial $-16t^2 + 25t + 5$ represents the height of the basketball after t seconds.

a) What is the initial vertical velocity of the ball? What is the initial height?

$V_0 = 25$

$S_0 = 5$

b) Write a polynomial to represent the distance between this ball and the ball from the previous question after t seconds.

$-16t^2 - 20t + 180 - (-16t^2 + 25t + 5)$

$-16t^2 - 20t + 180 + 16t^2 - 25t - 5$

$-45t + 175$