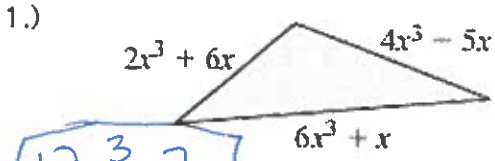
ALGEBRA 3 NAME: KEY

POLYNOMIALS – WORD PROBLEMS

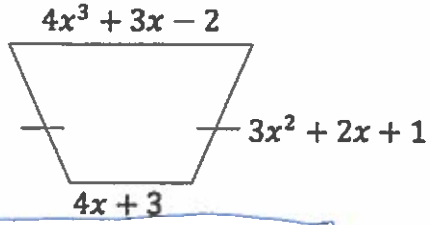
WRITE AN EXPRESSION FOR THE PERIMETER.

1.)



$12x^3+2x$

2.)

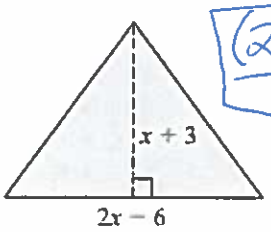


$3x^2+2x+1$

$4x^3+6x^2+11x+3$

WRITE AN EXPRESSION FOR THE AREA.

3.)



$\frac{(2x-6)(x+3)}{2}$

4.)

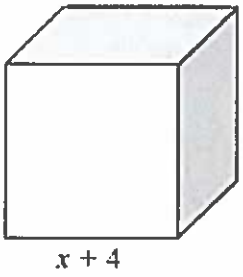
Square

$(x+3)^2$

WRITE AN EXPRESSION FOR THE VOLUME.

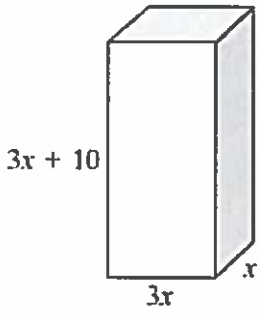
5.)

Cube



$(x+4)^3$

6.)



$(3x+10)(3x)(x)$

$(3x+10)(3x^2)$

$9x^3+30x^2$

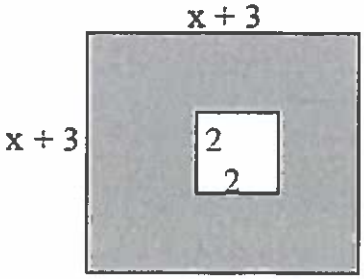
7.) A RECTANGULAR GARDEN HAS A LENGTH OF $x + 8$ UNITS AND A WIDTH OF $x - 4$ UNITS. DRAW A DIAGRAM, AND LABEL THE DIMENSIONS. FIND THE AREA.

$x+8$

$x-4$

$(x+8)(x-4)$

8.) FIND THE AREA OF THE SHADED REGION.

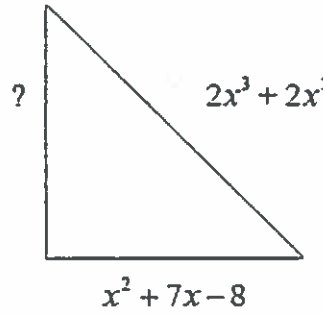


$(x+3)^2-4$

ALGEBRA 3 NAME: _____

9.) GIVEN THE PERIMETER, FIND THE MISSING SIDE.

$P = 2x^3 + 4x^2 + 6x + 3$

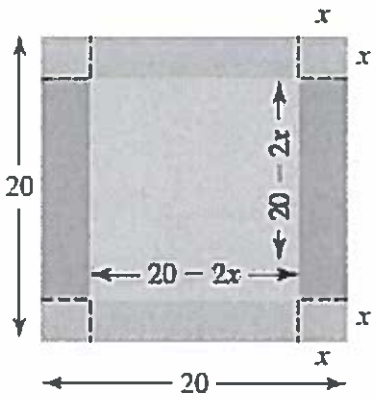


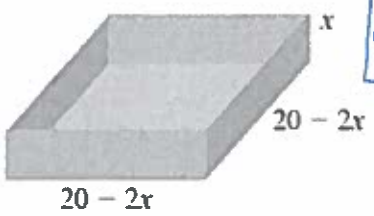
$(2x^3+4x^2+6x+3) - [(2x^3+2x-4x+6) + (x^2+7x-8)]$

$(2x^3+4x^2+6x+3) - (2x^3+3x^2+3x-2$

x^2+3x+5

10.) A BOX IS CREATED FROM A SHEET OF CARDBOARD 20 IN. ON A SIDE BY CUTTING A SQUARE FROM EACH CORNER AND FOLDING UP THE SIDES LET X REPRESENT THE LENGTH OF THE SIDES OF THE SQUARES REMOVED FROM EACH CORNER. FIND AN EXPRESSION FOR THE VOLUME OF THE BOX IN TERMS OF X.





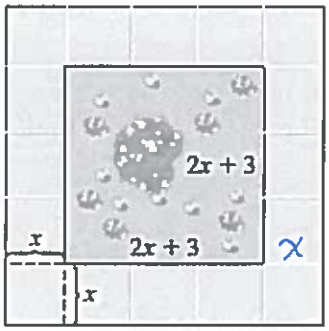
$x(20-2x)(20-2$

$(20x-2x^2)(20-2$

OR

$x(20-2x)^2$

11.) A SQUARE GARDEN IS SURROUNDED BY A WALKWAY OF WIDTH X.



A) FIND THE AREA OF THE GARDEN.

$(2x+3)^2$

B) FIND THE AREA OF THE WALKWAY AND THE GARDEN.

$2x+3+x+x$

$(4x+3)^2$

12.) IF THE PERIMETER OF A RECTANGLE IS EXPRESSED BY $2x^2 + 5x + 9$ AND THE WIDTH IS $2x^2 + 1$, FIND AN EXPRESSION FOR THE LENGTH.

$P = 2x^2+5x+9$

$2x^2+1 \rightarrow$ [ ]

$2(2x+1)$

$4x+2 \rightarrow$ Both Widths

$(2x^2+5x+9) - (4x+2)$

$2x^2+x+7 \rightarrow$ Both lengths $\div 2$

$\frac{2x^2+x+7}{2}$

$x^2+\frac{x}{2}+\frac{7}{2}$