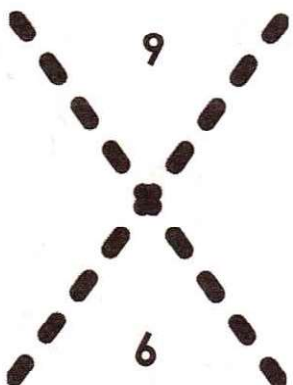
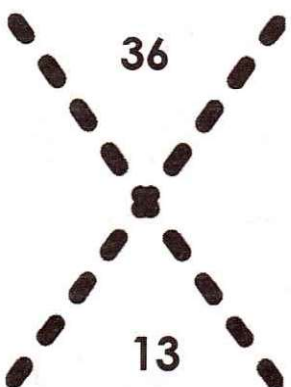
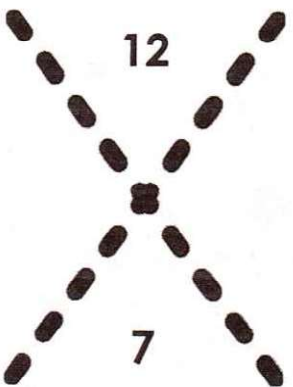
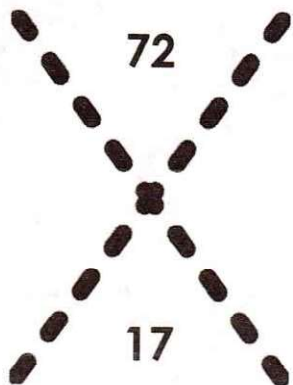
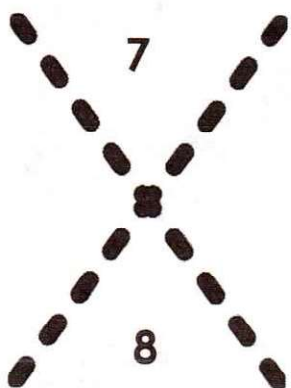
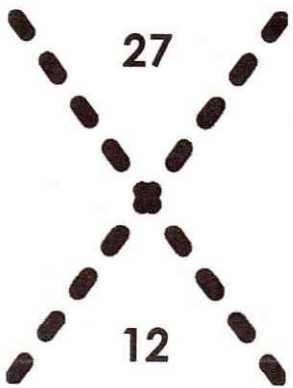
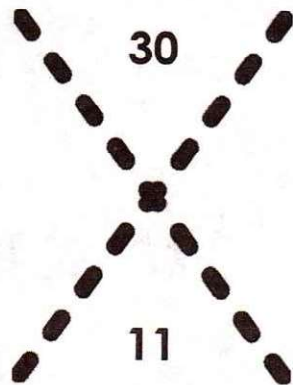
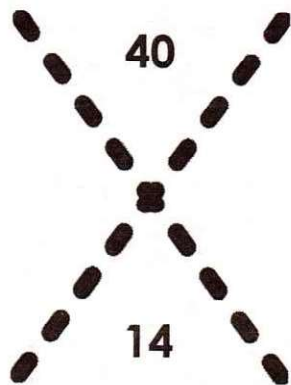
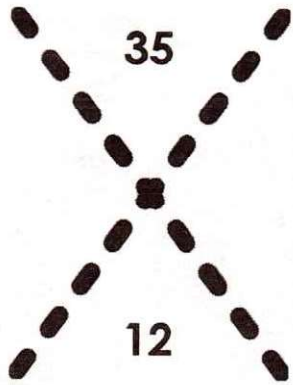
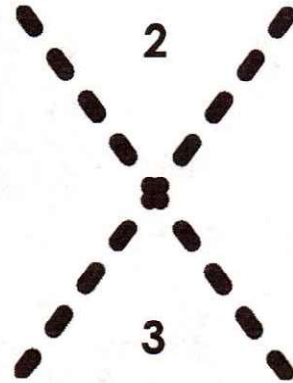
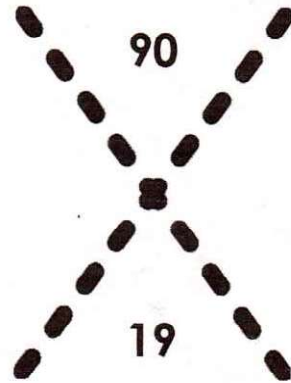
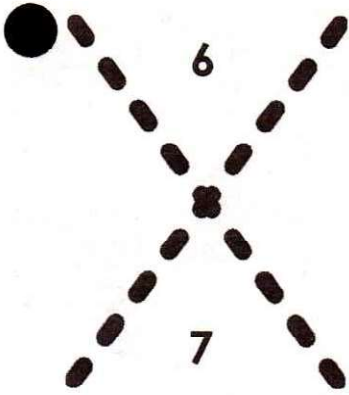
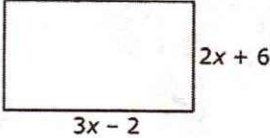


### Number Diamonds Puzzle #1



## 7.1 Operations with Polynomials Review

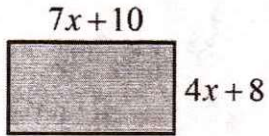
What you need to know & be able to do	Things to remember	Examples	
1. Classify polynomials	<b>Degree:</b> $x^3$ : cubic $x^2$ : quadratic $x$ : linear $\#$ : constant  <b>Number of Terms:</b> 1: Monomial 2: Binomial 3: Trinomial 4+: Polynomial  Make sure your expressions are simplified first!	1. $5x - 7$	2. $-18$
		3. $-2x^2 + 8 + 3x^2$	4. $4x^2 + 3x - 10 + 2(x - 4)$
2. Add and Subtract Polynomials	-Line up like terms  -If subtracting, change subtraction sign to addition and change the signs of every term in the 2 <sup>nd</sup> polynomial	5. $(4x + 3x^2 - 7) + (-6x^2 + 4)$	6. $(4x^2 - 3x - 2) - (9x^2 + 3x - 7)$
3. Multiply polynomials	-Distributive Method or Area Method  $-x \cdot x = x^2$	7. $5x(3x + 7)$	8. $(x - 9)(x + 6)$
		9. $(x + 4)^2$	10. $(6x + 3)(4x - 8)$
4. Area & Perimeter	Perimeter: Add up all outside sides  Area: Rectangle: $A = l \times w$ Triangle: $A = \frac{1}{2}bh$	11. Find the area & perimeter of the following:  	12. The area of a rectangle is $x^2 + 7x + 6$ . What is the <b>perimeter</b> of this rectangle?

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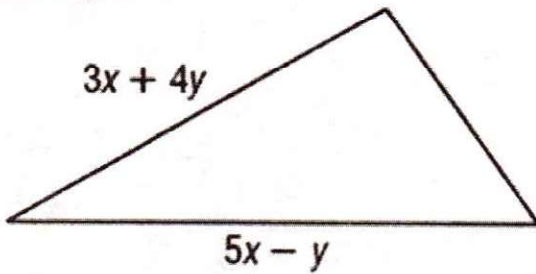
**Day 4: Applications Using Polynomials**

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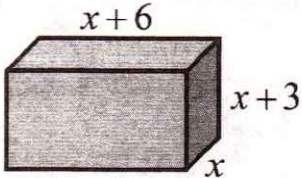
- a. Write an expression that represents the perimeter and area of this rectangle.



- b. The measures of two sides of a triangle are given. If  $P$  is the perimeter, and  $P = 18x + 9y$ , find the measure of the third side.

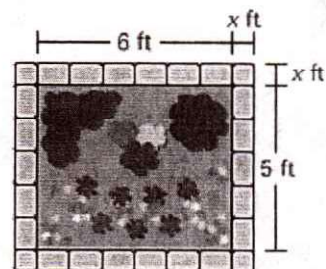


- c. Write an expression that represents the volume of this rectangular prism. ( $V = lwh$ )



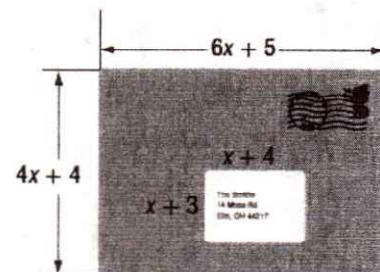
d. You are designing a rectangular flower bed that you will border using brick pavers. The width of the board around the bed will be the same on every side, as shown.

- a. Write a polynomial that represents the total area of the flower bed and border.



- b. Find the total area of the flower bed and border when the width of the border is 1.5 feet.

- e. Find the expression that represents the area not covered by the mailing label.



- f. The polynomial  $c(x) = x^2 - 7x + 15$  models the cost a company incurs from making an item at a price  $x$ . The polynomial  $i(x) = 3x^2 + 4x - 50$  represents the income from selling the same item at a price  $x$ . Write a polynomial that expresses the profit from making and selling the item. (hint: profit = income - cost)

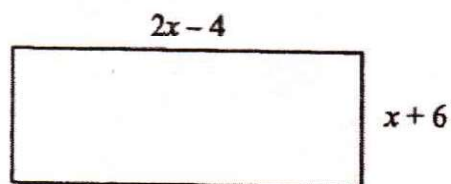
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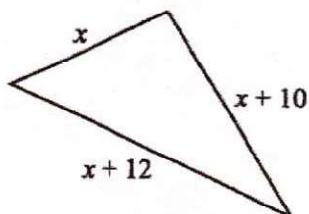
Practice Assignment

1. Find the perimeter of the following figures:

a.



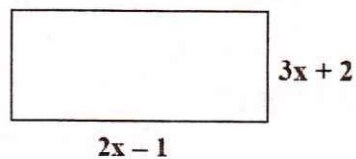
b.



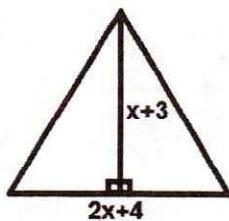
2. The measure of the perimeter of a triangle is  $37x + 42$ . It is known that two of the sides of the triangle have measures of  $14x + 16$  and  $10x + 20$ . Find the length of the third side.

3. A rectangle has a perimeter of  $12y^2 - 2y + 18$  and has a width of  $4y^2 - y + 6$ . What is the length of the rectangle?

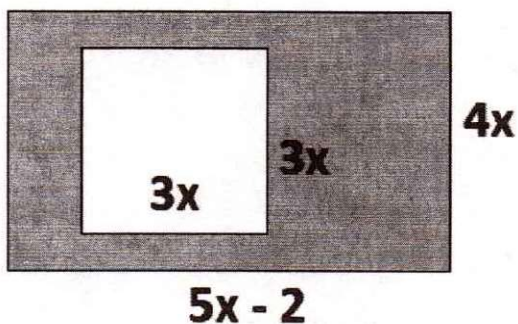
4. Write an expression for the perimeter and area of the following rectangle.



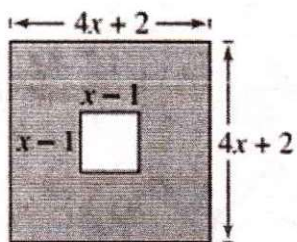
5. Write an expression for the area of the triangle ( $A = \frac{bh}{2}$  or  $A = \frac{1}{2}bh$ ).



6. Find the area of the shaded region:



7. Find the area of the shaded region:



8. The polynomial  $c(x) = x^2 + 4x - 10$  models the cost a company incurs from making an item at a price  $x$ . The polynomial  $i(x) = 4x^2 - x + 20$  represents the income from selling the same item at a price  $x$ . Write a polynomial that expresses the profit from making and selling the item. (hint: profit = income - cost)