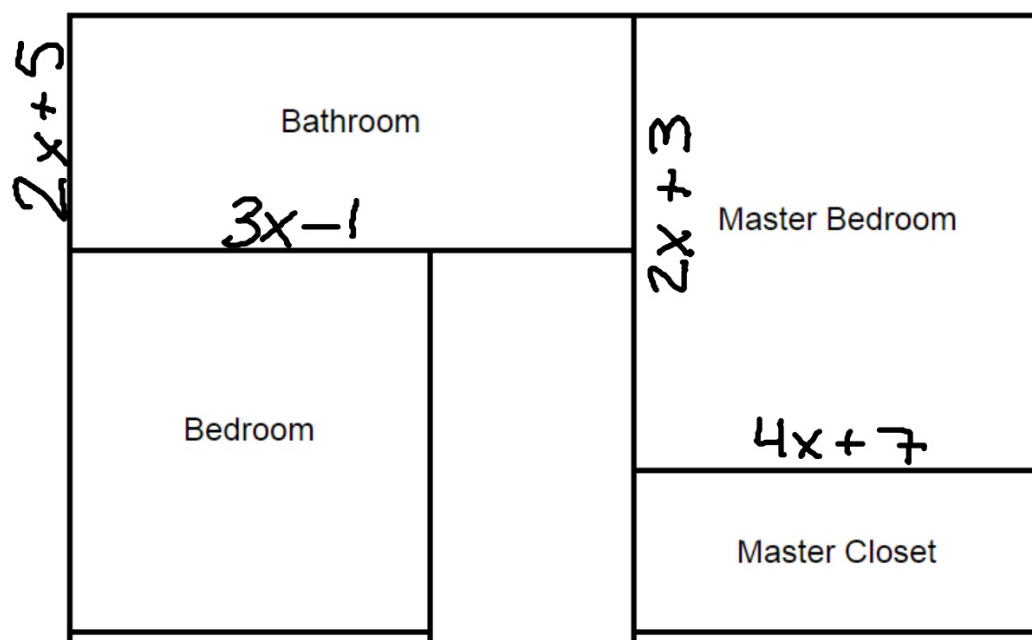


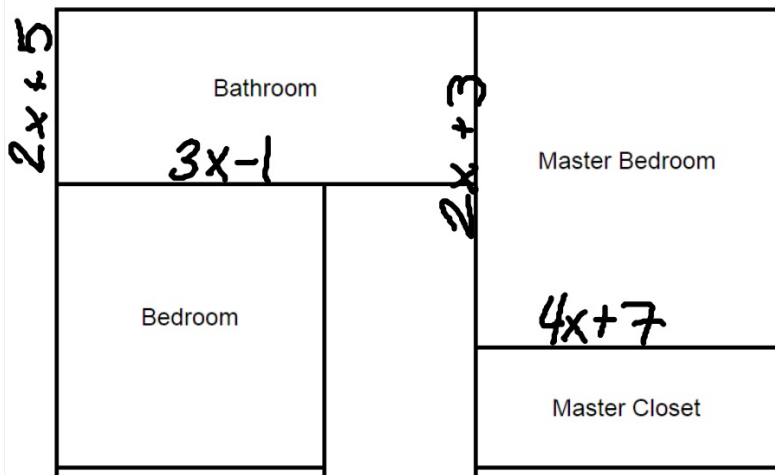
## Polynomial House Project!

$$\begin{array}{r} 25x^2 + 13x - 15 \\ - \qquad \qquad \qquad + \\ 13x \qquad \qquad \qquad 26 \\ + \qquad \qquad \qquad - \\ 20x^4 - 30x^5 + 2x - 8x^3 + 100 \\ 2x^2 \qquad \qquad \qquad 16x \\ - \qquad \qquad \qquad + \\ 13x \qquad \qquad \qquad 32 \\ + \qquad \qquad \qquad - \\ 23 \qquad \qquad \qquad 5x^3 \\ - \qquad \qquad \qquad + \\ 5x^3 + 3 \qquad \qquad \qquad x + 10 \end{array}$$

### Part 1 - Polynomial Operations

- On a separate sheet of paper, determine the perimeter and area of each room.
- Your work must be clearly numbered and neat. Answers must be in simplified form.
- All answers are polynomial expressions.





Area:  $(3x-1)(2x+5)$

	$2x$	$5$
$3x$	$6x^2$	$15x$
$-1$	$-2x$	$-5$

$$6x^2 + 13x - 5$$

Perimeter:

$$3x-1 + 3x-1 + 2x+5 + 2x+5$$

$$10x+8$$

### **Part 2 - Evaluating Polynomials**

- On a separate sheet of paper, work each of the questions below.
- Your work must be clearly numbered, labeled and neat.

- 1) The perimeter of the master bedroom and the perimeter of the living room are exactly the same. Write an equation to represent that the perimeters are equal.
- 2) Solve the equation you wrote for  $x$ .
- 3) Using the polynomial answers from Part 1, substitute  $x$  into each to find the perimeter and area of each room.
- 4) You want to put carpet in the Master Bedroom, the Master Closet, the Bedroom, the Closet, and the Living Room. You checked with various stores and found that the best deal was given by a company who will charge you \$3.49 per square foot. Calculate the total cost for carpeting these rooms.
- 5) You want to put vinyl flooring in the Bathroom. You checked with various stores and found that the best deal was given by a company who will charge you \$3.79 per square foot. Calculate the total cost for the vinyl flooring.
- 6) You want to put hardwood flooring in the Hallway. You checked with various stores and found that the best deal was given by a company who will charge you \$5.99 per square foot plus an additional \$375 for labor. Calculate the total cost for the hardwood flooring.
- 7) You want to put ceramic tile flooring in your Kitchen and Dining Room. You checked with various stores and found that the best deal was given by a company who will charge you \$3.00 per square foot plus an additional \$320 for labor. Calculate the total cost for the ceramic tile flooring.

Bathroom Perimeter:  $10x + 8$

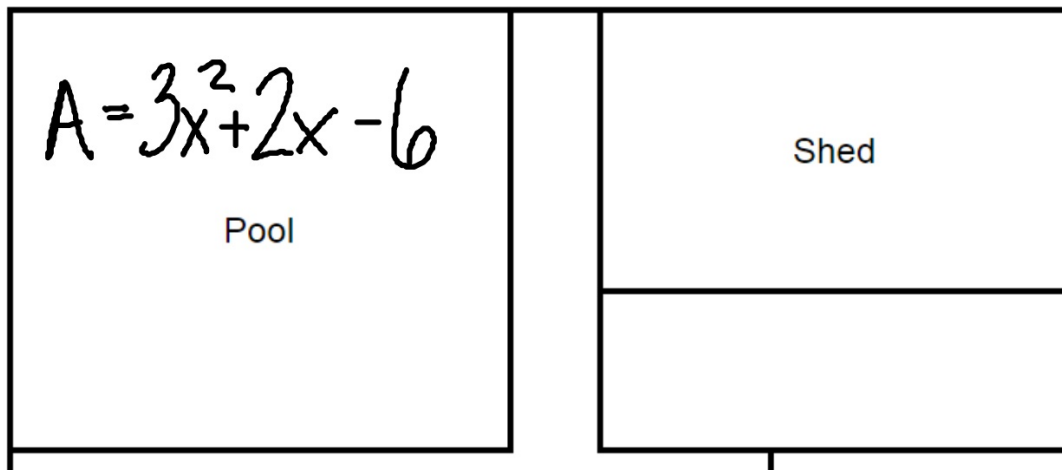
Master Bedroom Perimeter:  $12x + 20$

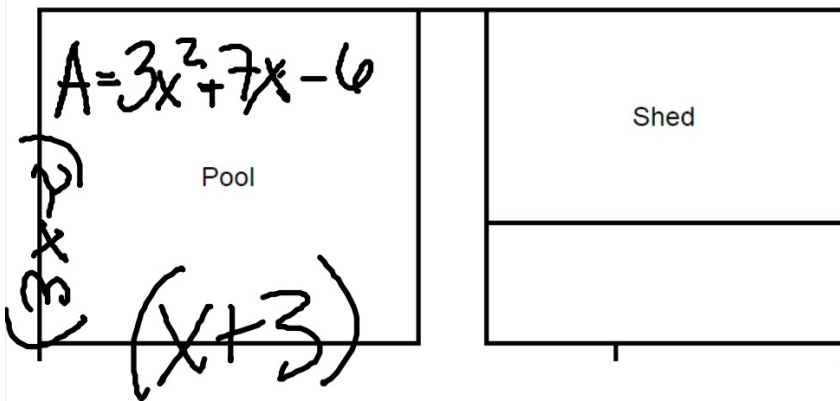
Equation:

$$\begin{array}{r} 10x + \cancel{8} = 12x + 20 \\ \phantom{10x +} \cancel{-8} \phantom{=} \phantom{12x +} \cancel{-8} \\ \hline 10x = \cancel{12x} + 12 \\ \phantom{10x} \cancel{-12x} \phantom{=} \phantom{\cancel{12x} +} \phantom{12} \\ \hline -2x = 12 \\ \phantom{-2x} \phantom{=} \phantom{12} \phantom{=} \phantom{12} \\ \phantom{-2x} \phantom{=} \phantom{12} \phantom{=} \phantom{12} \\ \hline \phantom{-2x} \phantom{=} \phantom{12} \phantom{=} \phantom{12} \\ \phantom{-2x} \phantom{=} \phantom{12} \phantom{=} \phantom{12} \\ \hline \boxed{x = 6} \end{array}$$

**Part 3 - Factoring Polynomials**

- On a separate sheet of paper, use factoring to determine the sides of each area of the backyard. Then determine the perimeter.
- Your work must be clearly numbered and neat. Answers must be in simplified form.





Factor:

$$3x^2 + 7x - 6$$

$$3 \cdot -6 = -18$$

$$\begin{array}{l} \swarrow \searrow \\ \underline{9} \quad \underline{-2} = 7 \end{array}$$

Perimeter:

$$\begin{array}{l} x+3 + x+3 \\ + 3x-2 + 3x-2 \end{array}$$

	<u>x</u>	<u>3</u>
<u>3x</u>	$3x^2$	$9x$
<u>-2</u>	$-2x$	$-6$