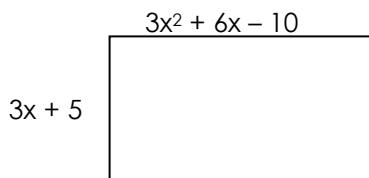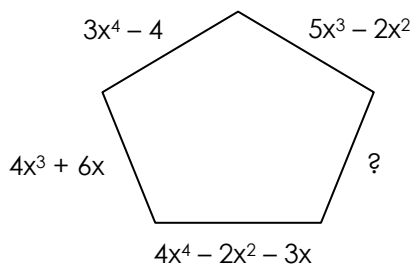# Finding Perimeter and Area Using Polynomials

1.   What is the distance around the rectangle if the length is $3x^2 + 6x - 10$ and the width is
     $3x + 5$?

$$3x^2 + 6x - 10$$

$3x + 5$

2.   If the perimeter of the pentagon below is $7x^4 + 9x^3 - 6x^2 + 10$, what is the length of the missing side?

$3x^4 - 4$ $5x^3 - 2x^2$

$4x^3 + 6x$?

$4x^4 - 2x^2 - 3x$

3.   If the perimeter of the **square** below is $12x^5 - 8x^2 + 20x - 4$, what is the length of one side?

?
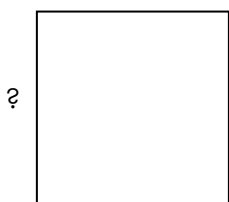
4.   Ana knows that the perimeter of her backyard is $(6x^2 + 14x)$ feet. If the length of her backyard is $(2x^2 + 3x - 7)$ feet, what is the width of her backyard?

5.   The area of the square below is represented by the expression $4x^2 + 4x + 1$. The area of   the rectangle is represented by the expression $x^2 - 5x + 6$. Using the diagram below, find   the area of the shaded region.
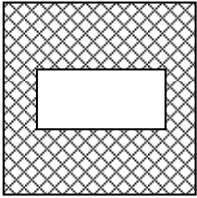
6.   A rectangular piece of wood has an area of $5x^4 + 3x^2 - 6x + 8$. If two identical circles are   cut out of the wood and the area of EACH circle is $x^2 - 2$, find the area of the remaining   piece of wood. (Hint: Use the picture below.)
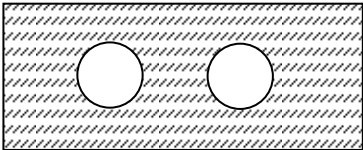
7.   A circular plot of land has an area of $7x^5 - x^3 + 4x^2 + 9$. If the walkway around this piece   of land has an area of $x^4 - 4x^3 + 2x$, what is the area of the land and walkway combined?
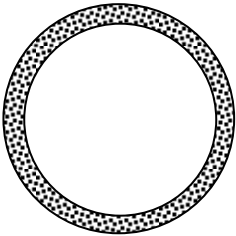
8.   The width of Adrian's bedroom is $(x - 5)$ feet. He knows that the length is four times the width. Find the perimeter of Adrian's bedroom.