

3.3 Problems (6 pt Problems)

1. Write the following compactly (simplify): $(x^2 - 2x + 3) - (3x^2 - 2x - 1)$. Check your answer by evaluating at appropriate values.
2. Write the following compactly (simplify): $(x^2 - 2x + 3)(-2x - 1)$. Check your answer by evaluating at appropriate values.
3. Suppose you are interested in areas and perimeters of photographs of 3:2 aspect ratio. Write down a polynomial giving these areas. Draw a picture and label it. If you wanted a 1 inch border and thin frame, what is the area of the border and the length of frame material needed? Use reasonable approximations and indicate these in your discussion.

3.4 Exercises

1. Consider $-2x^3 + 3x^2 - 4x + 7$. Why is this a polynomial? What is its degree? What is its leading coefficient? How many terms does it have? What is the coefficient of x^2 ?
2. Consider $(3x - 2)(2x - 1)$. Why is this a polynomial? What is its degree? What is its leading coefficient? How many terms does it have? What is the coefficient of x ?
3. Give an example of a product of two binomials.
4. Give an example of a product of a monomial with two variables and degree 3 and a binomial.
5. Simplify $2x^3 - 2x + 1 + (3x^3 - 2x^2 + 2x + 1)$.
6. Simplify $2x^3 - 2x + 1 - (3x^3 - 2x^2 + 2x + 1)$.
7. Multiply $(3x - 2)(3x + 2)$.
8. Consider $(-2x - 5)(-2x + 5)$. What is the coefficient of x ? (try do find this without distributing completely)
9. Consider $(-2x + 3)(-2x + 5)$. What is the coefficient of x ? (try do find this without distributing completely)
10. What is the degree and leading coefficient of $(2x - 3)^7$. Find the coefficient of x^4 (Hint: use Pascal's triangle).
11. What is the degree and leading coefficient of $(3x - y)^7$. Find the coefficient of yx^4 (Hint: use Pascal's triangle).