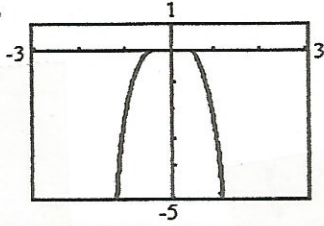
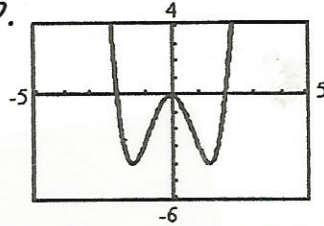


1. Which of the following could be the graph of  $f(x) = -3x^3$ ? Explain your choice.

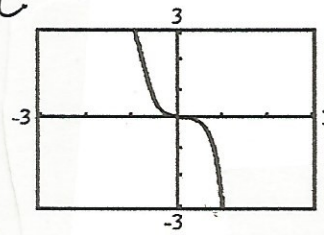
A.



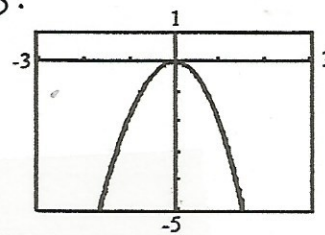
B.



C.

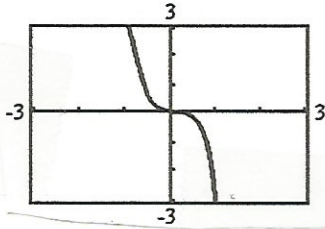


D.

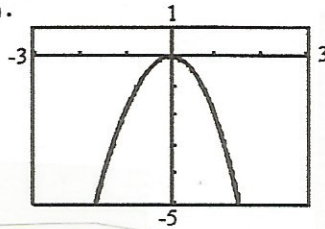


2. Which of the following could be the graph of  $f(x) = \frac{3}{4}x^4 - \frac{7}{2}x^2$ ? Explain your choice.

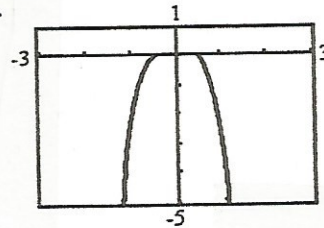
A.



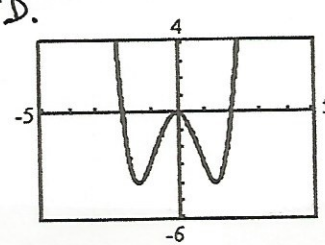
B.



C.



D.



3. Add  $(5x^3 - 2x^2 + 6x - 3) + (7x^2 - 8x - 5)$ . What is the coefficient of  $x^2$  in the sum?

4. Subtract  $(2x^2 - 7x + 3) - (8x^2 - 2x + 10)$ . What is the constant term in the difference?

5. Multiply. a.  $(2x - 5)^2$

b.  $(x + 4)^3$

c.  $(x - 1)(x + 4)(2x - 3)$

6. Expand  $(3x + 2)^4$  using Pascal's triangle. What degree and type of polynomial is the result?

7. Divide  $2x^3 - x^2 + 3x - 5$  by  $x - 4$  using synthetic division. What is the degree and leading coefficient of the quotient.

8. Factor completely. a.  $4x^4 - 32x$

b.  $x^4 - 10x^2 + 9$

9. List all the possible rational zeros of  $f(x) = 2x^3 + 5x^2 + 7x + 15$

10. Find all the zeros of  $f(x) = x^3 + 4x^2 - 2x - 20$ . How do any real zeros of  $f(x)$  relate to the graph of  $f(x)$ ?

11. Write a polynomial function of least degree and leading coefficient of 1 with the given zeros.

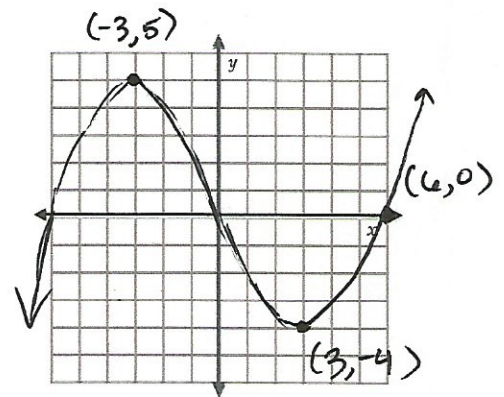
a. -1, 2, 3

b. 5 and  $2i$

12. In the graph, a. What is the point  $(-3, 5)$  called?

b. What is the point  $(3, -4)$  called?

c. What is the point  $(6, 0)$  called?



13. Write the function graphed below.

