

Name: _____

Factor Completely:

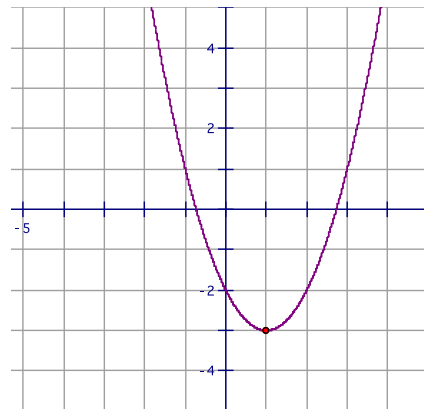
1. $9x^2 - 6x + 4$

2. $64x^3 - 27$

3. $x^4 + 3x^3 - 8x - 24$

Use the Graph for the following questions:

4. What is the minimum?
5. Where is the graph decreasing?
6. What is the Domain?
7. What is the Range?
8. What is the y-intercept?



Perform the operation and write the answer in standard form.

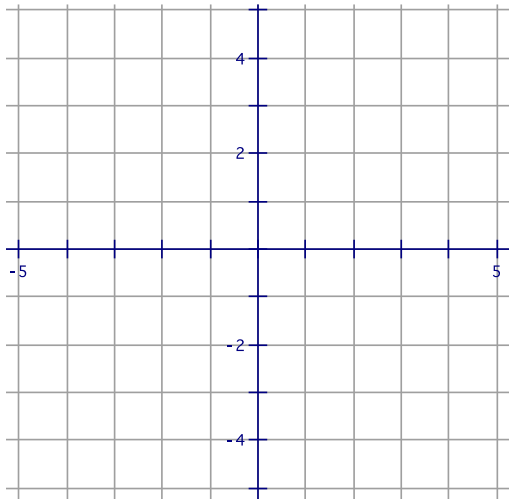
9. $(2x^2 + 6x^4 - 7x - 3x^3) + (5x^3 - 7x + 14) =$

10. $(x + 3 - 17x^2) - (7 + 3x^2 - 14)$

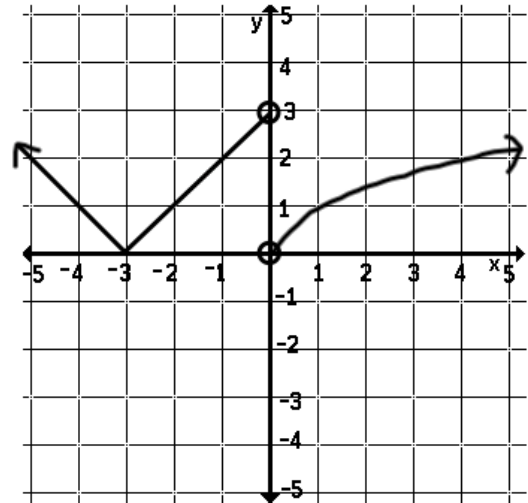
11. $(x + 2)(x^2 - 3x + 4)$

12. $(x^2 + 2x + 5)^2$

13. Graph the piecewise function: $f(x) = \begin{cases} x, & x < 0 \\ x^2 + 1, & x \geq 0 \end{cases}$



14. Write a piecewise function for the graph:

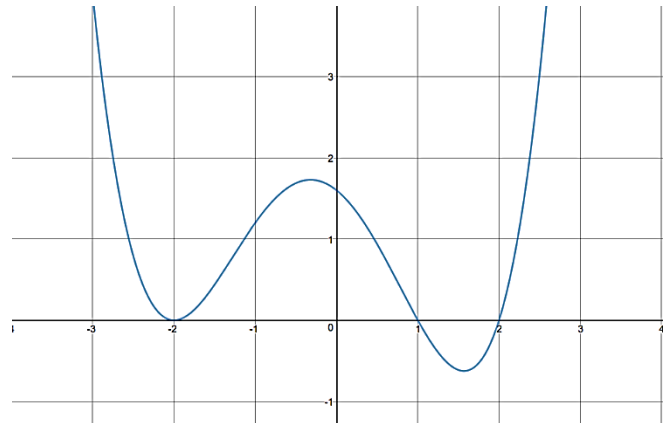


Use the graph for the following questions:

14. Find the **zeroes** of the function:

15. Write the function in **factored** form:

16. Determine the interval(s) where the graph is **positive**:



Divide:

17. $(18x^3 - 3x^2 + x - 1) \div (x^2 - 4)$

18. $(3x^3 - 2x - 8) \div (x + 2)$

18. Find the zeros, multiplicity, end behavior, and sketch a graph of the function: $f(x) = -x^2(x-3)(x+4)^2$

Zeros	Multiplicity	Type of Intersection

End Behavior:

