

Alg. 2 4.1- 4.4 Review +Transformation Review

Name _____ Per ____

Describe the end behavior of the graph of the function.

1. $g(x) = 6x^4 - 3x^3 + 12x^2 + 8x + 2$

2. $h(x) = -5x^9 + 6x^7 - 5x^4 + x^2 - 1$

3. $f(x) = -5x - 10 - 3x^4 + 4x^2$

4. $h(x) = -2x + 3x^3 - 4x^2 + 3x^5$

Find the sum or difference.

5. $(10x^4 + 3x^2 - 5x + 4) + (7x^5 - 5x^4 + 2x - 9)$

6. $(4x^3 + 6x^2 - 9x + 1) - (8x^3 + 2x^2 - 5x - 1)$

Find the product.

7. $5x^2(3x^2 + 7x + 6)$

8. $(8x^2 - 3x + 1)(-3x + 2)$

Divide using polynomial long division.

9. $(4x^4 + 2x^3 - 9x^2 - 36) \div (x^2 + x - 4)$

10. $(2x^4 - 40x^2 - 28) \div (x^2 - 5x - 2)$

Divide using synthetic division.

11. $(4x^2 - 15x + 7) \div (x - 2)$

12. $(x^3 - 9x + 12) \div (x + 3)$

Use synthetic division to evaluate the function for the indicated value of x .

13. $f(x) = x^3 + x^2 - 4x + 3$; $x = -1$

14. $f(x) = -x^3 - 6x^2 + 6$; $x = -2$

Factor the polynomial completely.

15. $x^3 - x^2 - 12x$

16. $9p^7 - 36p^5$

17. $x^3 + 27$

18. $w^3 - 125$

19. $x^3 - 7x^2 + 5x - 35$

20. $m^3 - 2m^2 - 16m + 32$

Write a rule for g described by the transformations of the graph of f .

21. $f(x) = x^2$; translation 2 units right

22. $f(x) = 4x^2 + 5$; translation 6 units left

23. $f(x) = -2|x| - 1$; translation 7 units left

24. $f(x) = -2x + 4$; translation 3 units right

25. $f(x) = 3x + 11$; translation 4 units right

26. $f(x) = -5x - 16$; translation 1 unit left

27. $f(x) = 4x^2 + 5$; horizontal stretch by a factor of 2 and a translation 2 units up.

28. $f(x) = x^2$; vertical stretch by a factor of 3 and a reflection in the x -axis, followed by a translation 3 units down