Honors Math II
Unit 5 day 5: Writing Polynomial Functions

Name_____
Period_____ Date_____

Write a polynomial function of least degree that has rational coefficients, a leading coefficient of 1 and the given zeros.

1. $x = 3, x = 2$

2. $x = \frac{1}{2}, x = -2$

3. $x = \sqrt{5}, x = -\sqrt{5}$

4. $x = 3i, x = -3i$

5. $x = 3, x = -2, x = 5$

6. $x = \frac{2}{3}, x = 6, x = -2$

7. $x = 2 + i, x = 2 - i$

8. $x = -1, x = 4, x = 9$

9. $x = \sqrt{7}, x = -\sqrt{7}$

Write the equation for the polynomial with the given roots and y-intercept.

10. $(-2,0),\ (3,0),\ (-4,0),\ (0,12)$

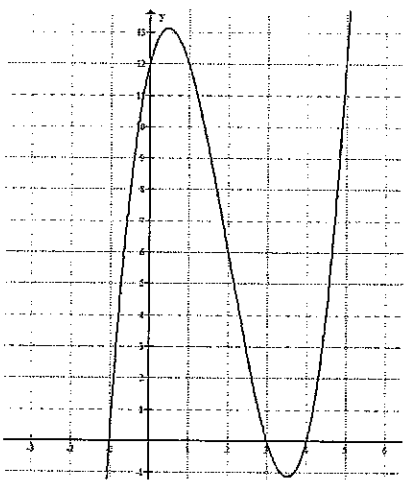
11. $(-1,0),\ (-2,0),\ (6,0),\ (0,-6)$

12. $(-1,0), (1,0), (-5,0), (0,-1)$

13. $(3,0), (-3,0), (4,0), (0,36)$

Write the equation for the given polynomial.

14.



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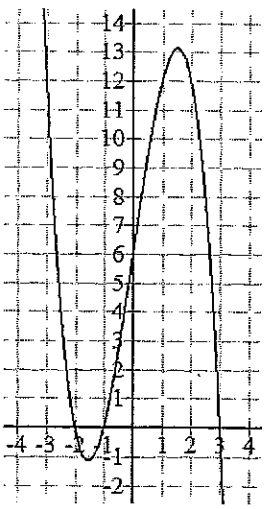

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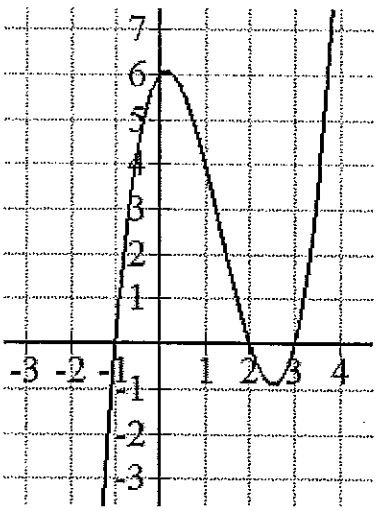

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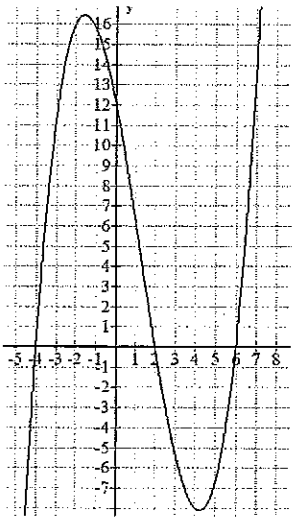

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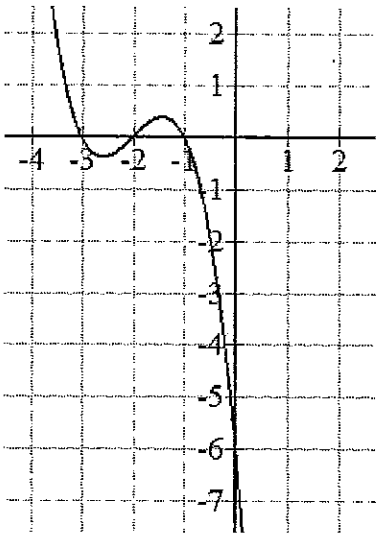

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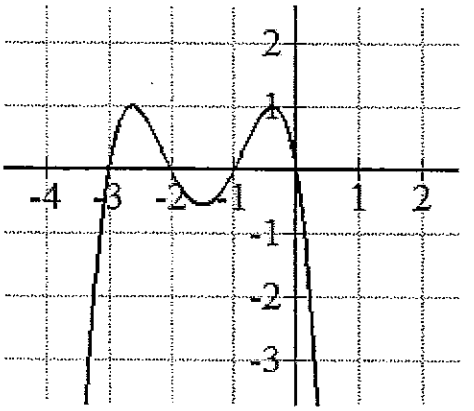


State the degree of the polynomial. Describe the end behavior of the graph of the polynomial function WITHOUT graphing.

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

21. $f(x) = -5x^3$

22. $f(x) = -12x^6 - 2x + 5$

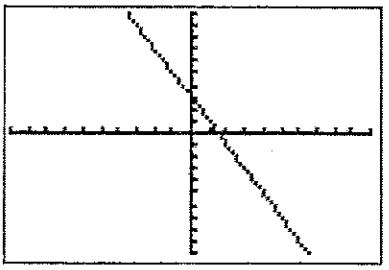
23. $f(x) = 5x^4 + 4x^2 - 2x + 6$

24. $f(x) = 2x^5 - 7x^2 - 4x$

25. $f(x) = 4 - 2x + 3x^2 + 6x^4$

Match the polynomial function with its graph WITHOUT using a graphing calculator.

A.



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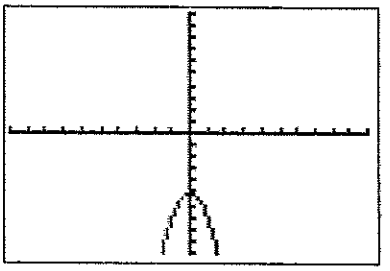

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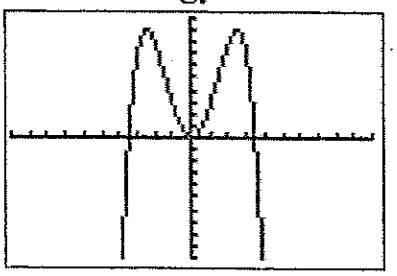

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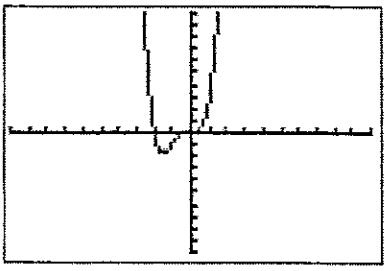

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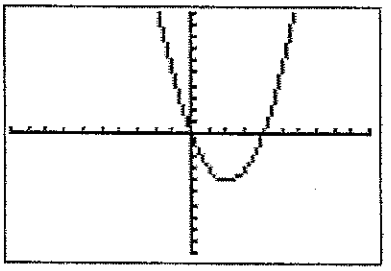

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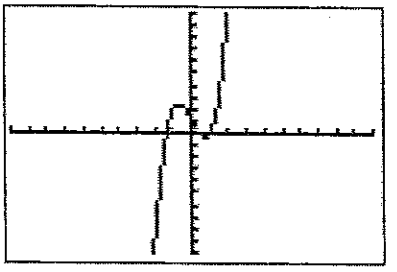

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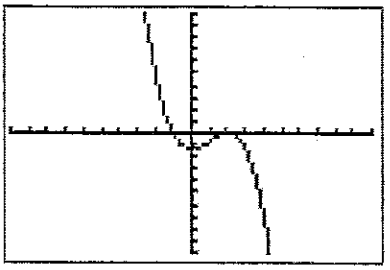

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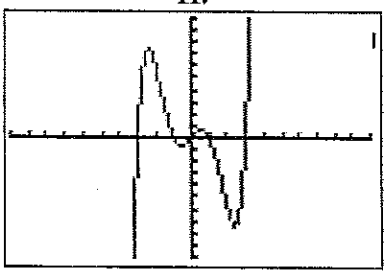
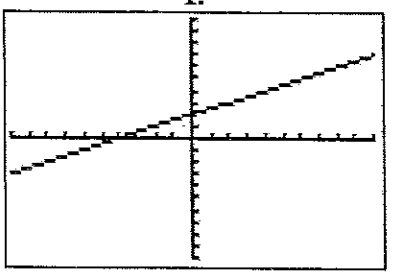


I.



_____ 26. $f(x) = x^2 - 4x$

_____ 27. $f(x) = \frac{1}{2}x + 2$

_____ 28. $f(x) = -2x + 3$

_____ 29. $f(x) = 2x^3 - 3x + 1$

_____ 30. $f(x) = -2x^2 - 5$

_____ 31. $f(x) = x^4 + 2x^3$

_____ 32. $f(x) = -\frac{1}{3}x^3 + x^2 - \frac{4}{3}$

_____ 33. $f(x) = -\frac{1}{4}x^4 + 3x^2$

_____ 34. $f(x) = \frac{1}{5}x^5 - 2x^3 + \frac{9}{5}x$