Secondary III 3-2 HW Name: _____

Graphing Polynomials

Determine the function's domain, range, and end behavior. (Use interval notation for the domain and range.)

1. $f(x) = x^7$

2. $f(x) = -x^9$

3. $f(x) = x^{10}$

4. $f(x) = -x^4$

Determine the zeros and multiplicity of each zero and state the end behavior.

5. $f(x) = x(x+1)(x+3)$

6. $f(x) = (x+1)^2(x-1)(x-2)$

7. $f(x) = -x(x-2)^2$

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

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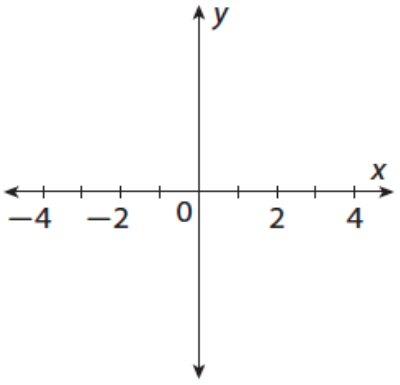
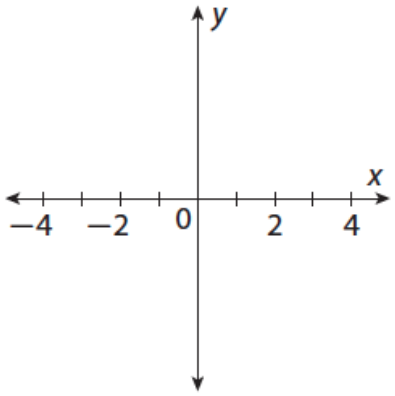
Sketch the graph the polynomial function.

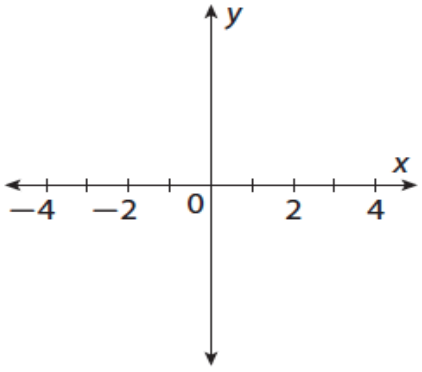
9. $f(x) = x^2(x - 2)$



10. $f(x) = -(x + 1)(x - 2)(x - 3)$

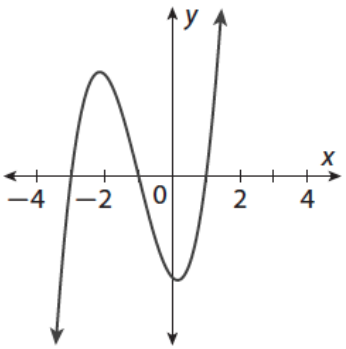


11. $f(x) = x(x + 2)^2(x - 1)$

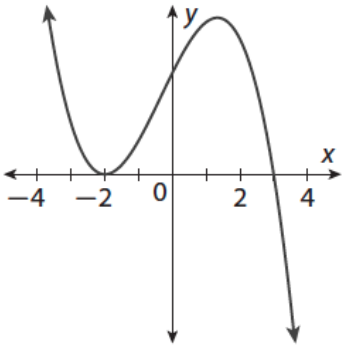


Write a cubic function in intercept form for the given graph, whose *x*-intercepts are integers. Assume that the constant factor *a* is either 1 or −1.

14.

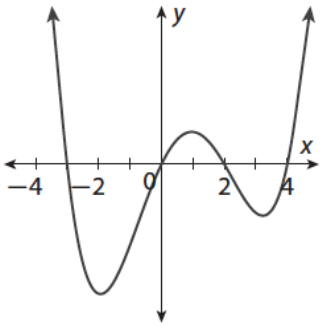


15.

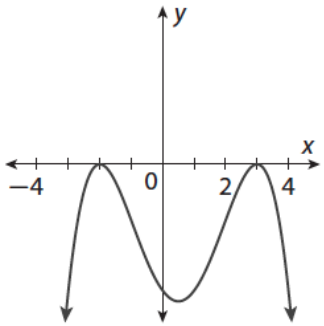


Write a quartic function in intercept form for the given graph, whose *x*-intercepts are integers. Assume that the constant factor *a* is either 1 or −1.

16.



17.



19. Explain the Error A student was asked to sketch the graph of the function $f(x) = x^2(x - 3)$. Describe what the student did wrong. Then sketch the correct graph.