

PRECALCULUS**Polynomials Worksheet**

Determine degree, leading coefficient and end behavior of the graph of each polynomial function.

1) $y = 3 - x^4 + 2x$

2) $y = 10x^8 + 2x^{15}$

State the end behavior, find all zeros and their multiplicity, and graph each polynomial function

3) $f(x) = (x-3)(x+2)(x+5)$

4) $g(x) = x(x+4)(x-3)^2$

5) $y = -(x+4)^2(x-4)$

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

7) $y = -x(x+4)(x-2)^2$

8) $y = (x+5)^7(x-2)^6(x+1)$

9) $y = x^3 - 3x^2 - 4x + 12$

10) $y = x^3 + 2x^2 - 4x - 8$

11) $y = -x^3 - 2x^2 + 9x + 18$

12) $y = 16x - x^3$

13) $g(x) = x^4 - 13x^2 + 36$

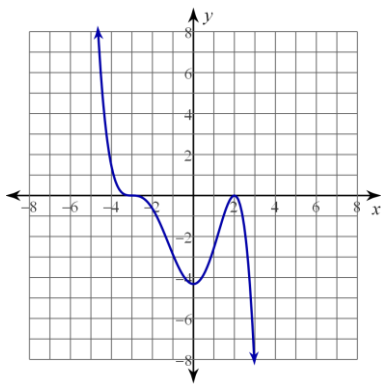
14) $f(x) = x^4 + x^3 - 12x^2$

Write a polynomial function in standard form with rational coefficients with the given roots.

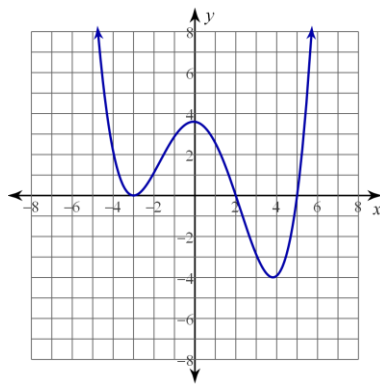
15) 3, -1, 4

16) $\sqrt{5}$, $-\sqrt{5}$ and 3

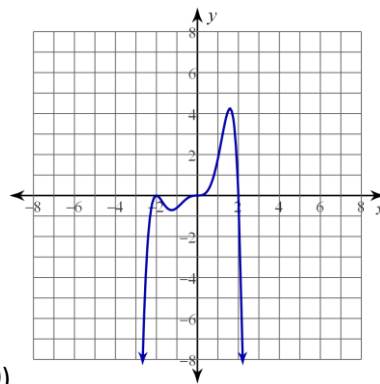
Write a possible polynomial equation in factored form for each of the graphs below.



17)



18)



19)