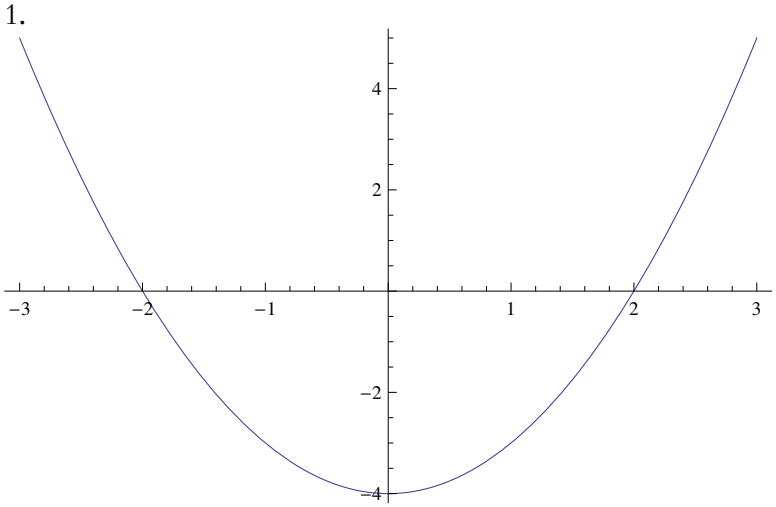
Single Pure – Polynomial Equation Finding

Find the equations of the following curves. Don't forget to look at:

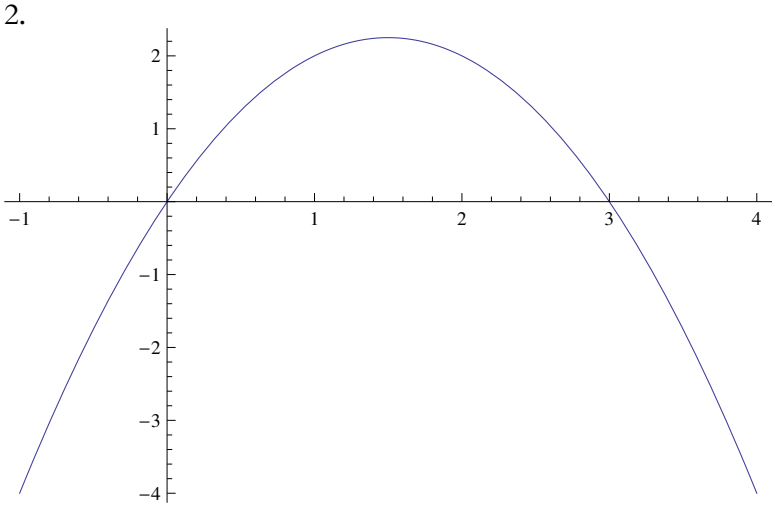
- What happens when x gets large.
- Where the curve crosses the y-axis.
- *How* the curve interacts with the x-axis (cross, touch, inflection).

1.



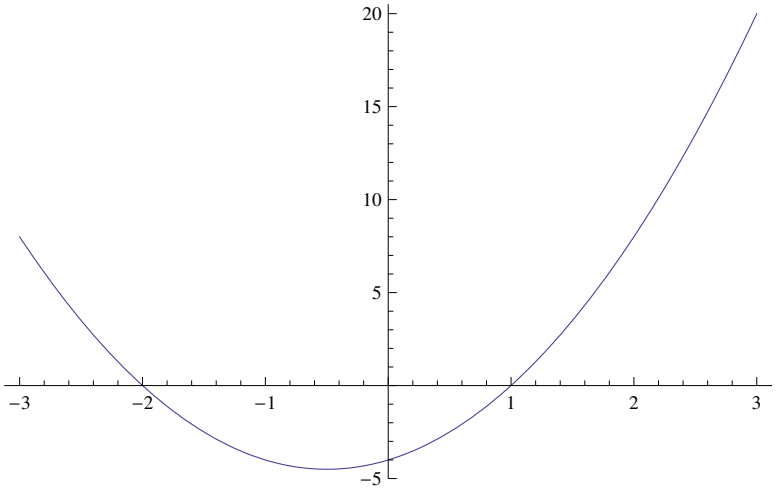
$y = (x - 2)(x + 2)$

2.



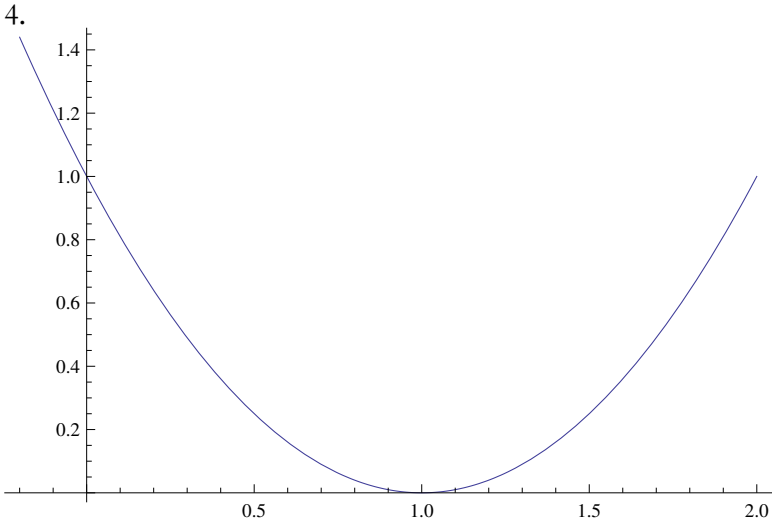
$y = -x(x - 3)$

3.



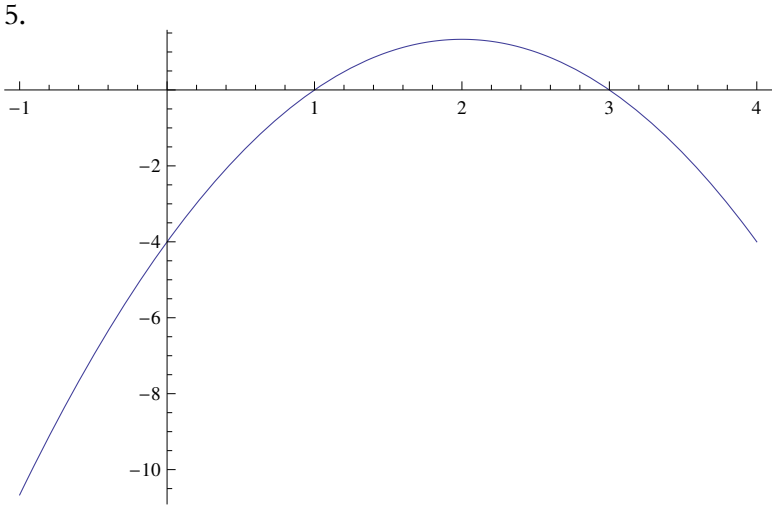
$y = 2(x - 1)(x + 2)$

4.



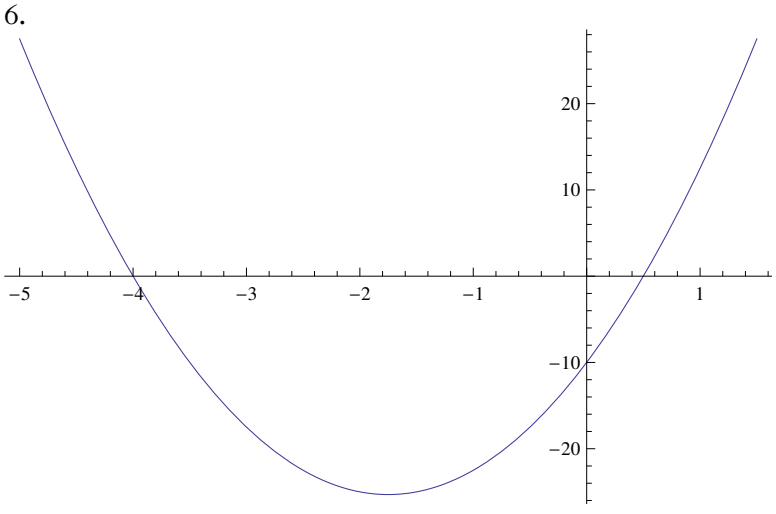
$y = (x-1)^2$

5.



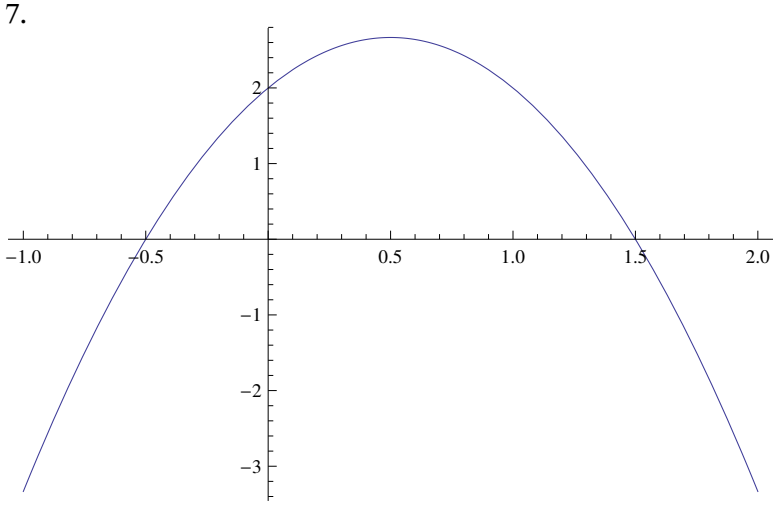
$y = -\frac{4}{3}(x-1)(x-3)$

6.



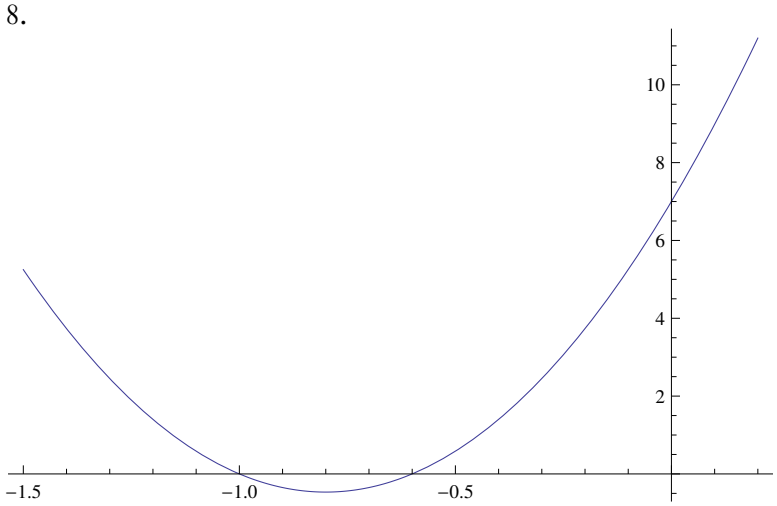
$y = \frac{5}{2}(x+4)(2x-1)$

7.



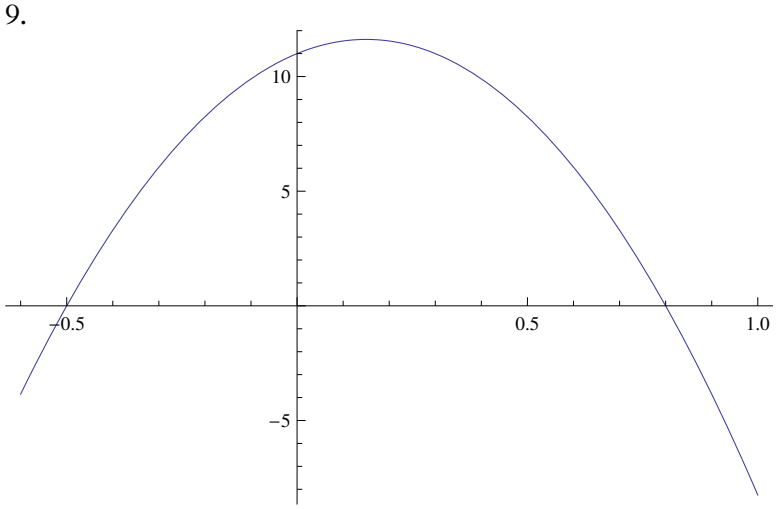
$y = -\frac{2}{3}(2x+1)(2x-3)$

8.



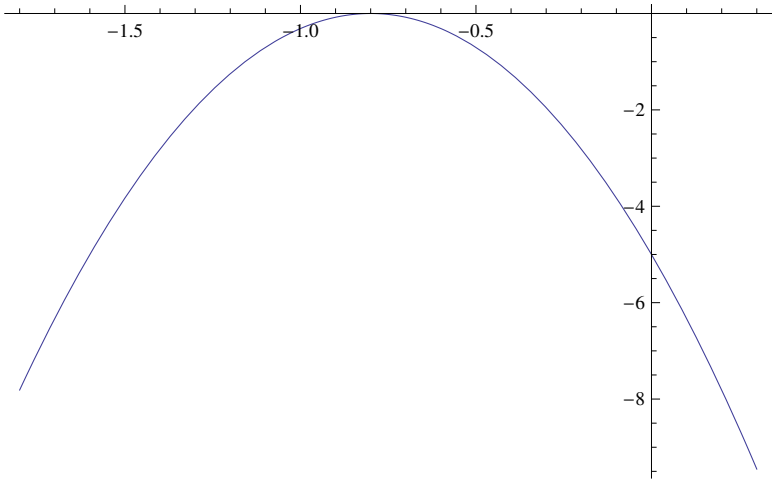
$y = \frac{7}{3}(x+1)(5x+3)$

9.



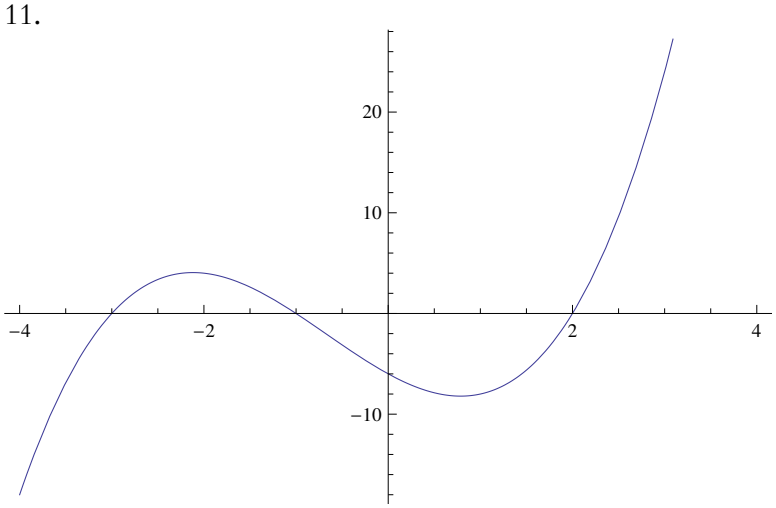
$y = -\frac{11}{4}(2x+1)(5x-4)$

10.



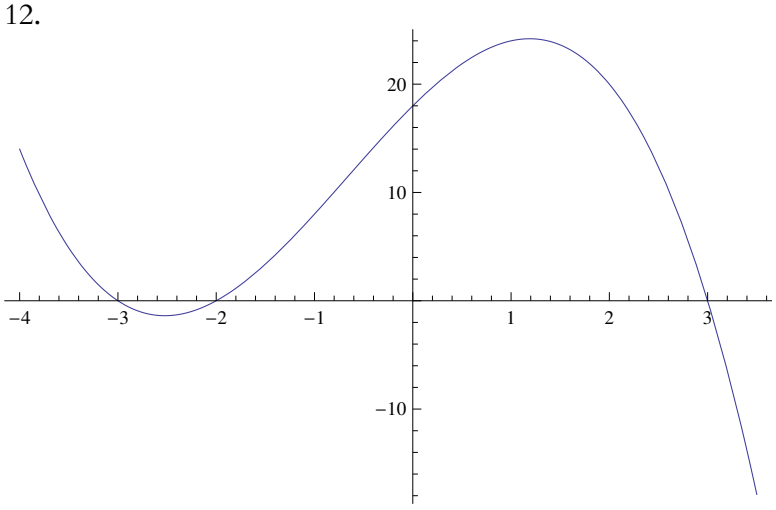
$y = -\frac{5}{16}(5x + 4)^2$

11.



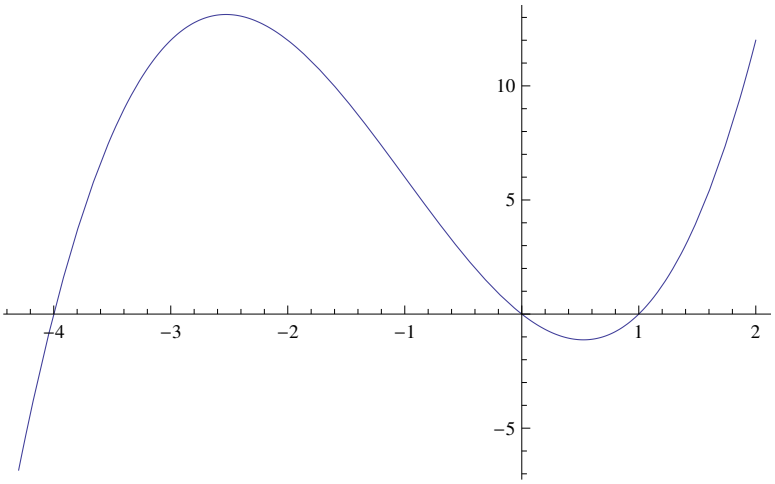
$y = (x - 2)(x + 1)(x + 3)$

12.



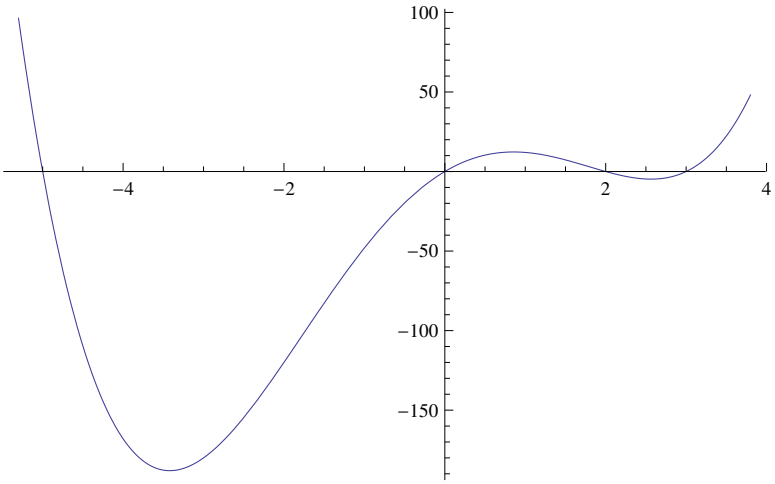
$y = -(x - 3)(x + 2)(x + 3)$

13.



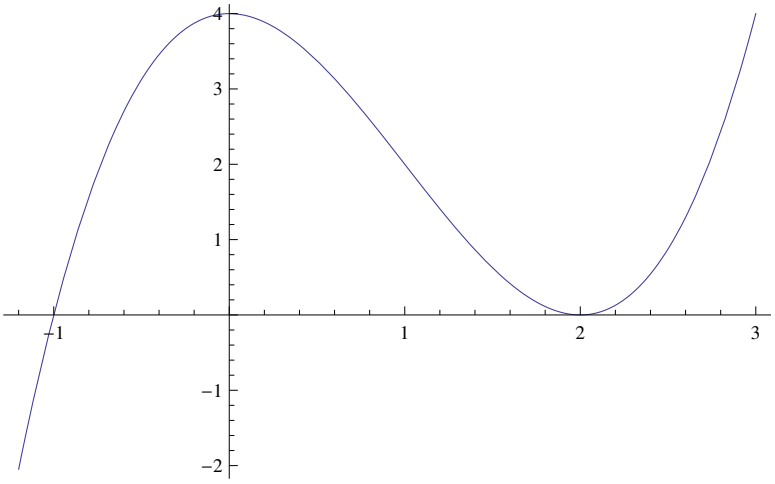
$y = x(x-1)(x+4)$

14.



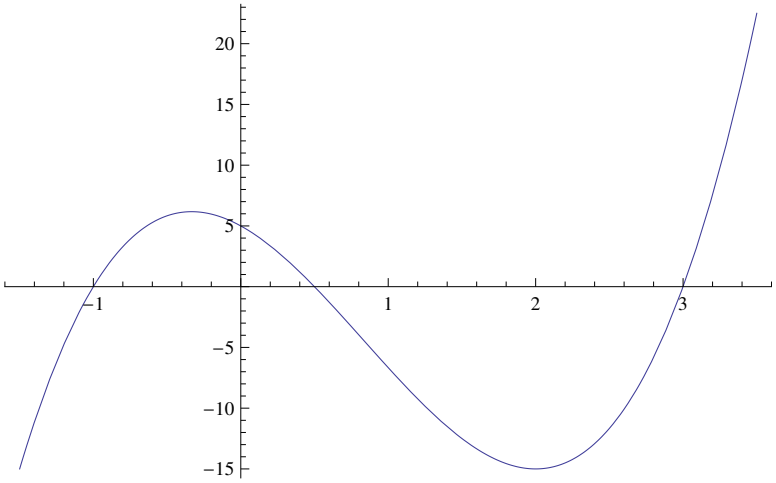
$y = x(x-2)(x-3)(x+5)$

15.



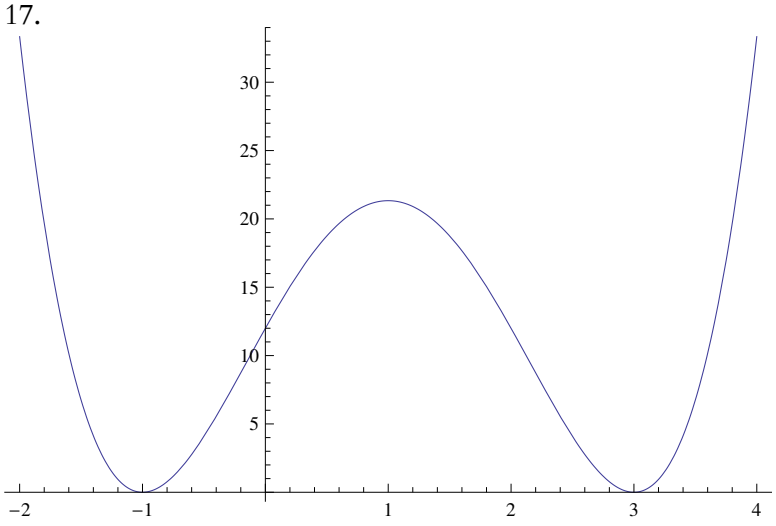
$y = (x-2)^2(x+1)$

16.



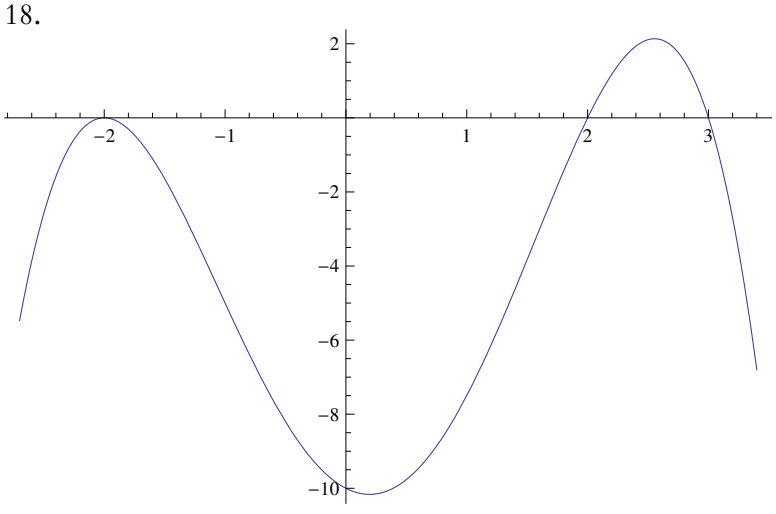
$y = \frac{5}{3}(x-3)(x+1)(2x-1)$

17.



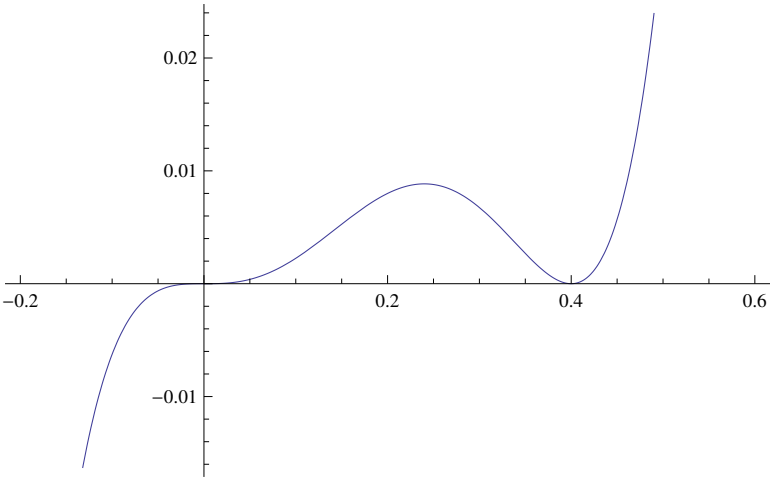
$y = \frac{4}{3}(x-3)^2(x+1)^2$

18.



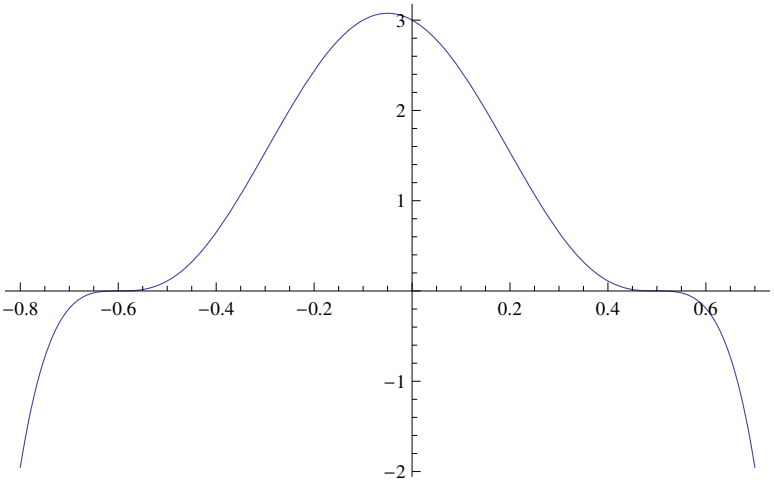
$y = -\frac{5}{12}(x-2)(x-3)(x+2)^2$

19.



$y = x^3(5x-2)^2$

20.



$y = -\frac{1}{9}(2x-1)^3(5x+3)^3$