1. Untersuchen Sie auf Symmetrie und $\lim_{x\to\pm\infty} f(x)$!

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

- keine Symmetrie, denn $f(-x) = 2(-x)^3 - 3(-x)^2 + 3 = -2x^3 - 3x^2 + 3 \neq -f(x) = -2x^3 + 3x^2 - 3$

  $\neq f(x) = +2x^3 - 3x^2 + 3$

- $\lim_{x\to\infty} f(x) = \infty;\ ;\ \lim_{x\to-\infty} f(x) = -\infty$

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

   - achsensymmetrisch, denn $f(-x) = -3(-x)^4 + 4(-x)^2 + 4 = -3x^4 + 4x^2 + 4 = f(x)$
   - $\lim_{x\to\infty} f(x) = -\infty;\ ;\ \lim_{x\to-\infty} f(x) = -\infty$

   c. $f(x) = -5x^3 - 2x + 6$

keine Symmetrie, denn $f(-x) = -5(-x)^3 - 2(-x) + 6 = +5x^3 + 2x + 6 \neq -f(x) = 5x^3 + 2x - 6$

$\neq f(x) = -5x^3 - 2x + 6$

   - $\lim_{x\to\infty} f(x) = -\infty;\ ;\ \lim_{x\to-\infty} f(x) = \infty$

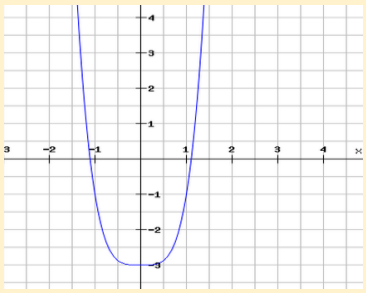
2. Welcher Graph gehört zu welcher Funktionsvorschrift?

   a) $f(x) = 2x^5 + 3x^2$ b) $f(x) = 2x^4 - 3$

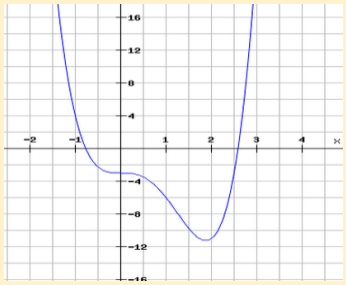
   c) $f(x) = 2x^4 - 5x^3 - 3$ d) $f(x) = -2x^5 + 3x^2 - 3$

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

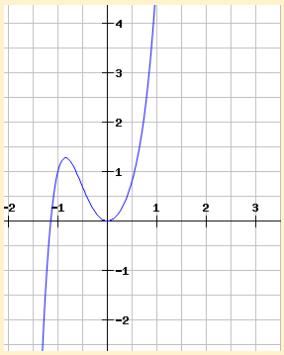
1. b



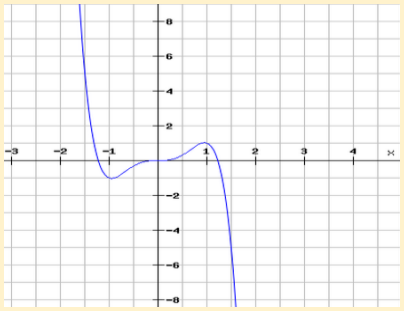
2. c



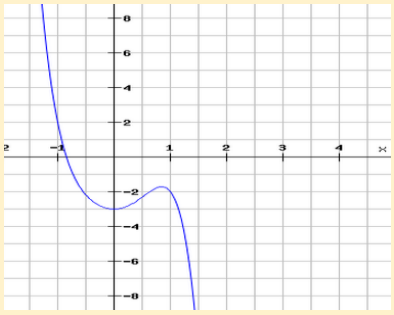
3. a



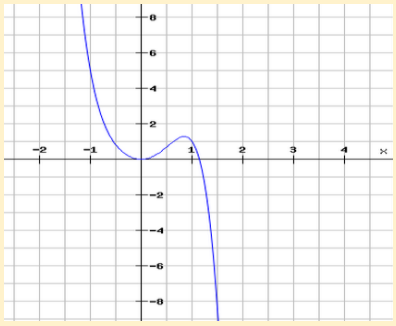
4. f



5. d



6. /



7. e