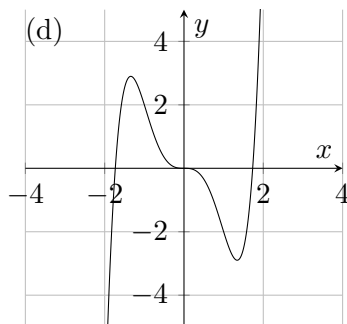
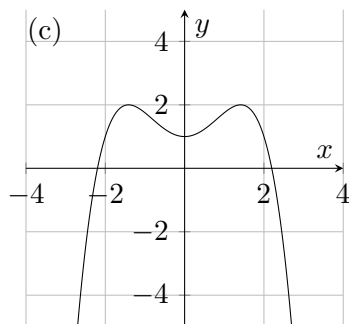
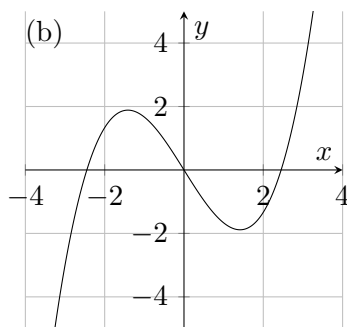
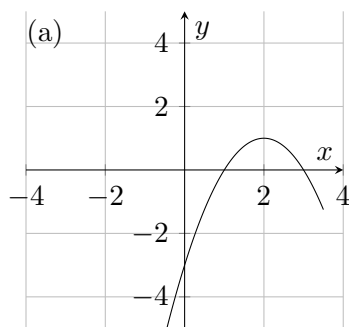


## Precalculus Review

1. Let  $f(x) = \frac{5}{2x+1}$ . Compute the difference quotient  $\frac{f(a+h) - f(a)}{h}$  for  $h \neq 0$ .
2. Find an equation of the line through  $(2, 7)$  that is parallel to the line passing through  $(1, 3)$  and  $(4, 15)$ .
3. Solve the equation  $8x^2 - 2x - 3 = 0$  by factoring.
4. Find all real solutions to the equation  $x^4 - 7x^2 + 10 = 0$ .
5. Factor the expression completely:  $2x^3 + 5x^2 - 18x - 45$ .
6. Examine the leading term of  $P(x) = -3x^4 + 6x^2 - 5x + 18$  and determine the far-left and far-right behavior of its graph.

7. Match each graph to the corresponding polynomial.



(i)  $f(x) = \frac{3}{2}x - 1$

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

(iii)  $f(x) = \frac{1}{8}x^4 - x^2$

(iv)  $f(x) = -\frac{1}{2}x^3 + x^2 + 1$

(v)  $f(x) = x^4 - 2x^3 - x^2$

(vi)  $f(x) = \frac{1}{3}x^3 - 2x$

(vii)  $f(x) = -\frac{1}{4}x^4 + x^2 + 1$

(viii)  $f(x) = x^5 - 3x^3$

8. Evaluate  $\log_2\left(\frac{1}{16}\right)$ .

9. Evaluate  $\sin(x)$ ,  $\cos(x)$ ,  $\tan(x)$ ,  $\sec(x)$ ,  $\csc(x)$ , and  $\cot(x)$  at  $x = \frac{7\pi}{3}$ .

10. Find the amplitude and period of  $y = -3\sin(4\pi x)$ . Then sketch the graph.