SM3 HW3.5: Oblique Asymptotes

Perform the polynomial long division (beware of missing terms) to find the oblique asymptote:

1) $f(x) = \dfrac{x^2 + 2x + 1}{x + 3}$

OA: $y = x - 1$

2) $f(x) = \dfrac{2x^3 - 5x - 12}{x^2 - 2}$

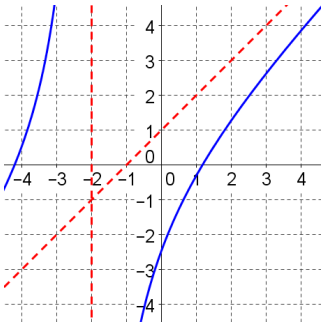
OA: $y = 2x$

3) $f(x) = \dfrac{x^4 - 1}{x - 2}$

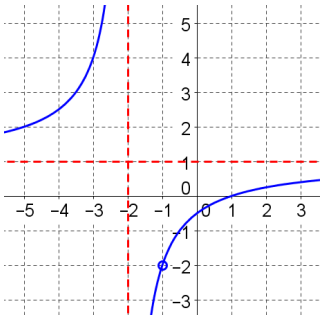
OA: $y = x^3 + 2x^2 + 4x + 8$

Graph the function with any vertical, horizontal, or oblique asymptotes (use dashed lines for asymptotes). Also, plot and label the y-intercept:

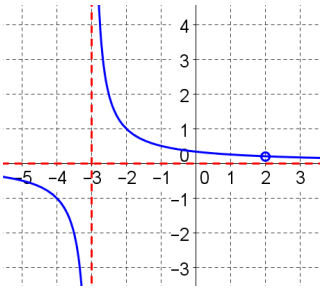
4) $f(x) = \dfrac{x^2 + 3x - 5}{x + 2}$



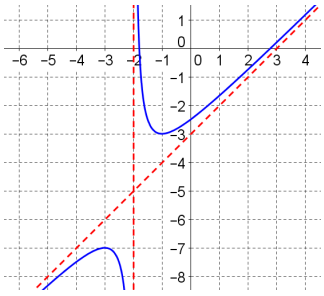
5) $f(x) = \dfrac{x^2 - 1}{x^2 + 3x + 2}$



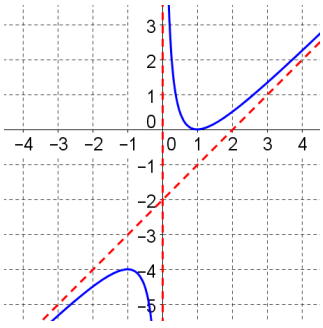
6) $f(x) = \dfrac{x - 2}{x^2 + x - 6}$



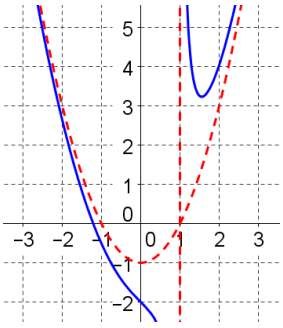
7) $f(x) = \dfrac{x^2 - x - 5}{x + 2}$



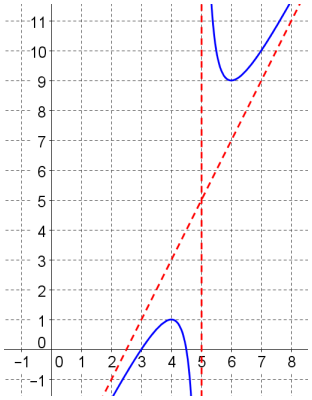
8) $f(x) = \dfrac{x^2 - 2x + 1}{x}$



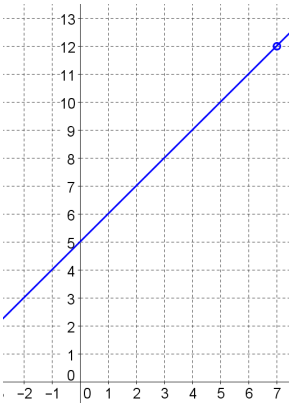
9) $f(x) = \dfrac{x^3 - x^2 - x + 2}{x - 1}$



10) $f(x) = \dfrac{2x^2 - 15x + 27}{x - 5}$



11) $f(x) = \dfrac{x^2 - 2x - 35}{x - 7}$



12) $f(x) = \dfrac{x^3 + x^2 - 3x - 1}{x + 1}$