1. [6 points] Circle a possible equation for the following graphs. Here, $a$ is a positive constant.

a. [2 points]

Solution:

$$f(x) = \frac{x + 1}{x + a} \quad f(x) = \frac{x}{x - a} \quad f(x) = \frac{x + 1}{x - a}$$

b. [2 points]

Solution:

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

c. [2 points]

Solution:

$$f(x) = (x - a)x^2 \quad f(x) = -(x - a)x^2 \quad f(x) = -(x - a)x \quad f(x) = -(x - a)^2 x$$