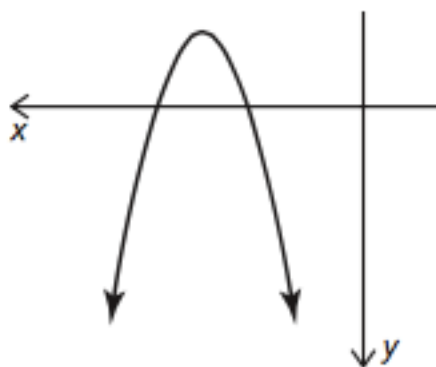Analyze each graph. Then, circle the function(s) which could model the graph.

Describe the reasoning you used to either eliminate of choose each function.

$f_1(x) = -2(x + 1)(x + 4)$ $\qquad\qquad$ $f_2(x) = -\frac{1}{3}x^2 - 3x - 6$

$f_3(x) = 2(x + 1)(x + 4)$ $\qquad\qquad$ $f_4(x) = 2x^2 - 8.9$

$f_5(x) = 2(x - 1)(x - 4)$ $\qquad\qquad$ $f_6(x) = -(x - 6)^2 + 3$

$f_7(x) = -3(x + 2)(x - 3)$ $\qquad\qquad$ $f_8(x) = -(x + 6)^2 + 3$

Student Solutions

STUDENT A
Chose $f_1(x), f_2(x), f_6(x), f_7(x), f_8(x)$
Reasoning: These functions all start with a negative and this picture is upside down so it must start with a negative

STUDENT B
Chose $f_2(x), f_4(x)$
Reasoning: These functions have a negative y-intercept

STUDENT C
Chose $f_1(x), f_2(x), f_6(x), f_8(x)$
Reasoning: I know it can't be $f_7(x)$ because the x-intercepts are on the same side of the y-axis, so the parenthesis must have the same sign