Name Mine _____ Date _____

Math 111: Final Review 6b

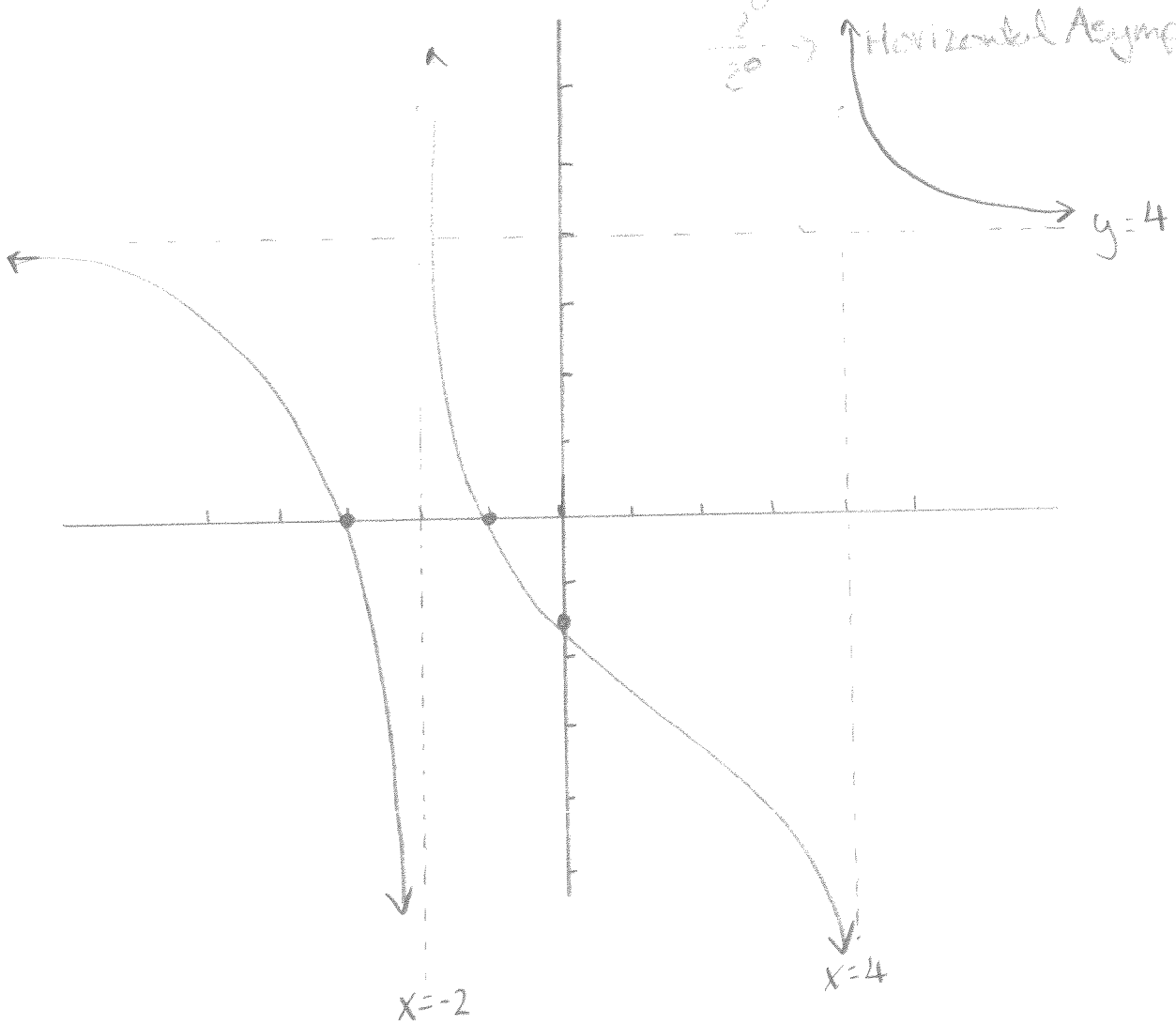
1. Graph the function given by: $f(x)=\dfrac{4x^2+16x+12}{x^2-2x-8}$

Graph each asymptote with a dashed line, and give the equation for each asymptote. Show all calculations used to find zeros and asymptotes

$\frac{4x^2+16x+12}{x^2-2x-8} = \frac{4(x^2+4x+3)}{(x-4)(x+2)} = \frac{4(x+1)(x+3)}{(x-4)(x+2)}$ → zeros $x=-3, x=-1$

→ asymptotes, vertical $x=4$ $x=-2$

$\frac{4}{\infty}$ → Horizontal Asymptote: $y=\frac{4}{1}=4$



2. Graph the function given by: $f(x)=\dfrac{2x^3+6x^2-20x}{5x^3-5x^2-60x}$

Graph each asymptote with a dashed line, and give the equation for each asymptote. Show all calculations used to find zeros and asymptotes

$$\frac{2x^3+6x^2-20x}{5x^3-5x^2-60x} \cdot \frac{2x(x^2+3x-10)}{5x(x^2-x-12)} = \frac{2x(x+5)(x-2)}{5x(x-4)(x+3)}$$

Zeros: $x=0, x=-5, x=2$

V. Asymptotes: $x=0, x=4, -3$

Horizontal asymptote: $\frac{2}{5}=y$