**AFM UNIT 4 HW 3**  NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Find the vertical asymptotes, horizontal asymptotes, and holes for each function. DO NOT GRAPH.*

1. $f\left(x\right)=\frac{x+1}{x-4}$ 2. $f\left(x\right)=\frac{2x-1}{x}$

VA: \_\_\_\_\_\_\_\_\_\_ VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_ HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_ HOLE: \_\_\_\_\_\_\_\_

3. $f\left(x\right)=\frac{x}{(x+5)(x-1)}$ 4. $f\left(x\right)=\frac{x^{2}-10x-11}{x+1}$

VA: \_\_\_\_\_\_\_\_\_\_ VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_ HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_ HOLE: \_\_\_\_\_\_\_\_

*Find the vertical asymptotes, horizontal asymptotes, and holes for each function. Then graph the function.*

5. $f\left(x\right)=\frac{x+2}{x-4}$

VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_

6. $f\left(x\right)=\frac{2}{x^{2}-x-20}$

VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_

7. $f\left(x\right)=\frac{4}{(x+3)^{2}}$

VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_

8. $f\left(x\right)=\frac{x-2}{x^{2}+6x-16}$

VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_



9. $f\left(x\right)=\frac{x^{2}-4}{x^{2}-x-6}$

VA: \_\_\_\_\_\_\_\_\_\_

HA: \_\_\_\_\_\_\_\_\_\_

HOLE: \_\_\_\_\_\_\_\_