***Directions:*** *Determine the end behavior and x-intercepts of each function. Then sketch a rough graph.* ***Check your work with a calculator.***

1. $f\left(x\right)=\left(x+2\right)\left(x-1\right)(x-4)$ 2. $f\left(x\right)=-(x+5)(x-1)$ 3. $f\left(x\right)=-(x-1)(x+6)(x-3)$

Degree: \_\_\_\_\_\_ Degree: \_\_\_\_\_\_ Degree: \_\_\_\_\_\_

End behavior: (even/odd, +/–) End behavior: End behavior:

x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

  

4. $f\left(x\right)=-x(x+4)(x-2)(x+1)$ 5. $f\left(x\right)=x(x+7)^{}$ 6. $f\left(x\right)=(x-1)(x+4)(x-3)(x-8)$

Degree: \_\_\_\_\_\_ Degree: \_\_\_\_\_\_ Degree: \_\_\_\_\_\_

End behavior: End behavior: End behavior:

x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

  

7. $f\left(x\right)=-2x(x+5)(x-2)$ 7b. In **2-3 sentences**, explain how you created the graph in #7.

Degree: \_\_\_\_\_\_

End behavior:

x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



8. $f\left(x\right)=-x(x+2)(x-4)^{2}$ 8b. What do you notice about graphing this equation that is different from the others below?

Degree: \_\_\_\_\_\_ How do you think you could make this graph work? Use a graphing calculator to check your idea.

End behavior:

x-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

