Name: $\qquad$
$\qquad$
$\qquad$

## Algebra II: Graphs of Polynomial Functions Practice Lesson 4 _part_2

Sketch a graph of the following polynomial function. Your graphs do not have to be exact, but must display correct end behavior, and display correct behavior at each $x$-intercept.

1. $P(x)=(x+5)(x+1)(x-3)$
2. $P(x)=-x\left(x^{2}-9\right)\left(x^{2}-49\right)$

3. $P(x)=-2 x^{2}(x+1)(x+3)^{2}$

4. $P(x)=-(x+7)(x+3)(x-2)(x-4)$

5. $P(x)=x^{3}+7 x^{2}-4 x-28$ (factor by grouping!)

6. $P(x)=-(x+1)^{2}(x-2)^{3}(x-4)$

$\qquad$
$\qquad$
In order to graph these last three functions, you should use the Rational Root Theorem to factor these polynomials.

Sketch a graph of the following polynomial function. Your graphs do not have to be exact, but must display correct end behavior, and display correct behavior at each $x$-intercept.
7. $P(x)=x^{3}-2 x^{2}-5 x+6$

8. $P(x)=-x^{3}+8 x^{2}-19 x+12$

9. $P(x)=x^{4}+x^{3}-28 x^{2}+20 x+48$


