Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Group 1 Examples

\_\_\_\_\_1. Which polynomial function has the following end behavior:

$$x\rightarrow \infty , f\left(x\right)\rightarrow -\infty $$

$$x\rightarrow -\infty , f\left(x\right)\rightarrow \infty $$

1. $y=-3x^{6}-2x-17$
2. $y=6x^{3}-5x^{2}+7x+30$
3. $y=-7x^{5}-6x^{2}-1$
4. $y=8x^{2}+8x-1$

\_\_\_\_\_2. What is a simpler form of $x^{3}\left(4x^{2}-2x+4\right)-4x^{5}?$ State the degree of the polynomial.

1. 5
2. 6
3. 3
4. 4

\_\_\_\_\_3. How many roots does this polynomial have? $f\left(x\right)=-3x(2x+3)(4-x)$

1. 2
2. 3
3. 4
4. 5

\_\_\_\_\_4. How many turning points does this polynomial have?

 $f\left(x\right)=-3x(2x+3)(4-x)$

1. 2
2. 3
3. 4
4. 5

\_\_\_\_\_5. Given $f\left(x\right)=-3x(2x+3)(4-x)$ What happens as $x\rightarrow \infty $?

1. $f\left(x\right) \rightarrow \infty $
2. $f\left(x\right) \rightarrow -\infty $

\_\_\_\_\_6. If $P\left(x\right)=-x^{3}+2x^{2}-1$, find $P(-1)$ using synthetic division.

1. $0$
2. $2$
3. $-4$
4. $-1$

\_\_\_\_\_7. Is (x-2) a factor of $\left(x\right)=x^{3}+x^{2}-7x+2$ ?

\_\_\_\_\_8. Is 2 a zero of $\left(x\right)=x^{3}+x^{2}-7x+2$ ?