Bellwork Alg 2 Tuesday, October 23, 2017

For each polynomial state whether the degree is even or odd and state if the leading coefficient is positive or negative.

1. $y = 6x(x-9)^2(5-x)^3(3x^2+7)^3(8-x)$

Deg: LC:

2. $f(x) = -x^3(3x-1)(2-x)^2(9-5x)^3(x+20)$

Deg: LC:

For each polynomial state the end behavior.

3. $y = -4x^3 - 10x^2 + 6x + 9x^3$

4. $y = 7x(5-2x)(8x+1)^3(x-9)$

5. $f(x) = -2x^3(4-x)^2(x+7)^2$

6. $y = -3x^2(5x-9)(2-3x)^3(4x-8)^2$

Bellwork Alg 2 Tuesday, October 23, 2017 (ANSWERS)

For each polynomial state whether the degree is even or odd and state if the leading coefficient is positive or negative.

1. $y = 6x(x-9)^2(5-x)^3(3x^2+7)^3(8-x)$

Deg: ODD LC: POS

$= (+x)(+x)^2(-x)^3(+x^2)^3(-x)$

$= (+x)(+x^2)(-x^3)(+x^6)(-x)$

$= +x^{13}$

2. $f(x) = -x^3(3x-1)(2-x)^2(9-5x)^3(x+20)$

Deg: EVEN LC: POS

$= (-x^3)(+x)(-x)^2(-x)^3(+x)$

$= (-x^3)(+x)(+x^2)(-x^3)(+x)$

$= +x^{10}$

For each polynomial state the end behavior.

3. $y = -4x^3 - 10x^2 + 6x + 9x^3$

$+5x^3$

DEG: ODD LC: POS ↙↗

end behavior: (↙, ↗)

OR

as $x \to -\infty$, $y \to -\infty$

as $x \to +\infty$, $y \to +\infty$

4. $y = 7x(5-2x)(8x+1)^3(x-9)$

$= (+x)(-x)(+x)^3(+x)$

$= (+x)(-x)(+x^3)(+x) = -x^6$

DEG: EVEN LC: NEG ↶↷

end behavior: (↙, ↘)

OR

as $x \to \pm\infty$, $y \to -\infty$

5. $f(x) = -2x^3(4-x)^2(x+7)^2$

$= (-x^3)(-x)^2(+x)^2$

$= (-x^3)(+x^2)(+x^2) = -x^7$

DEG: ODD LC: NEG ↘↗

end behavior: (↖, ↘)

OR

as $x \to -\infty$, $y \to +\infty$

as $x \to +\infty$, $y \to -\infty$

6. $y = -3x^2(5x-9)(2-3x)^3(4x-8)^2$

$= (-x^2)(+x)(-x)^3(+x)^2$

$= (-x^2)(+x)(-x^3)(+x^2)$

$= +x^8$

DEG: EVEN LC: POS ↶↷

end behavior: (↖, ↗)

OR

as $x \to \pm\infty$, $y \to \infty$