Homework 5.1

1. yes
$f(x) = -x^2 + 8$
degree 2 – quadratic
LC = -1

2. yes
$f(x) = 8x^4 + 6x - 3$
degree 4 – quartic
LC = 8

3. yes
already in standard form
degree 4 – quartic
LC = π

4. $+\infty, +\infty$ **5.** $-\infty, -\infty$ **6.** $+\infty, -\infty$ **7.** no, can't have a negative exponent

8. yes
already in standard form
degree 3 – cubic
LC = $-\frac{5}{2}$

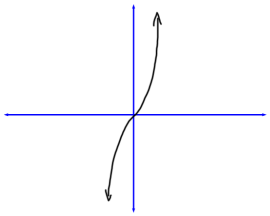
9. no, can't have a negative exponent

10. odd, positive **11.** even, positive **12.** odd, negative **13.** even, negative

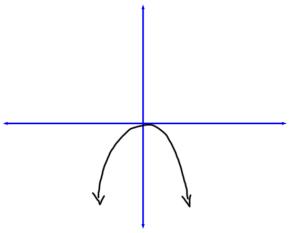
14. $-\infty, +\infty$ **15.** $+\infty, +\infty$ **16.** $+\infty, -\infty$ **17.** $-\infty, +\infty$ **18.** $+\infty, +\infty$ **19.** $+\infty, -\infty$

20. possible answer: $f(x) = -6x^5$

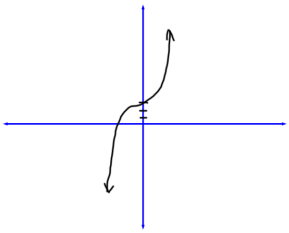
21. y-int = 0; LC = 1; degree = 3



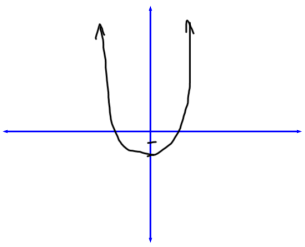
22. y-int = 0; LC = -1; degree = 4



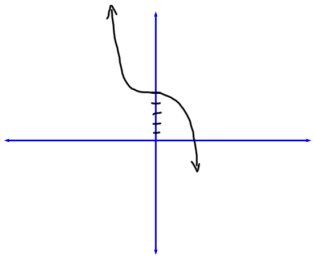
23. y-int = 3; LC = 1; degree = 5



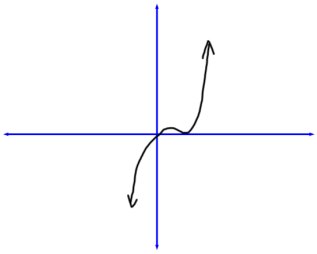
24. y-int = -2; LC = 1; degree = 4



25. y-int = 5; LC = -1; degree = 3



26. y-int = 0; LC = 1; degree = 3



27. $f(x) \to -\infty$ as $x \to -\infty$. $f(x) \to \infty$ as $x \to \infty$.

28b. 1 **28c.** if $\frac{f(x)}{g(x)} = 1$, then $f(x) \approx g(x)$ as $x \to \infty$. **29a.** $f(x) = 0.0109x^3$

29b. vertical stretch by factor of 36.