Practice Quiz Ch 3

For the following questions write the polynomial in standard form, state the degree, leading coefficient and end behavior.

1. $y = 4x^2 + 15x^4 - 10x + 8x^2 - 7$

2. $y = -7x^{12} + 2x^4 - 16x^{15} + 8x^2 + 2$

Expand & simplify the following:

3. $(x+2)^4$

4. $(x-2y)^3$

Factor completely

5. $36x^2 - 49$

6. $9x^2 - 25y^2$

7. $16x^4 - 81y^2$

8. Circle which one(s) of the following **are** polynomials

$x^2 + 4x - 10$

$x^9 - 4.5x^3 - 10x^{12}$

$17x^2 + 2x^{-3} + 6x^5$

$\sqrt{5}x^2 - 19.2x^{1.7} - 10$

$6x^{\sqrt{2}} + \frac{1}{x^2} + 7$

$17x^2 + 2x^5 + 6x^4$

Use $f(x) = -x + 8$ & $g(x) = 4x^2 + x - 5$ for #9-12

9. $3f(x) + g(x)$

10. $f(x) - g(x)$

11. $f(x) \bullet g(x)$

12. $\left(g(x)\right)^2$

13. Sketch a graph that meets the following qualifications.

$f(x)$ is positive on the intervals $(-\infty, -6)$ & $(5, \infty)$

$f(x)$ is negative on the intervals $(-6, 5)$

$f(x)$ is increasing on the interval $(-4, 0)$ & $(3, \infty)$

$f(x)$ is decreasing on the intervals $(-\infty, -4)$ & $(0, 3)$