Function Worksheet Name: Per:

Find the domain and range

1. $f(x) = 2x + 4$
2. $f(x) = (x + 4)(x - 4)$
3. $g(x) = \dfrac{x + 4}{x - 4}$
4. $h(x) = \dfrac{2x + 4}{x^2 - 9}$
5. $j(x) = \dfrac{x^2 + 4x}{x^2 - 4x + 3}$
6. $k(x) = \sqrt{x + 4}$
7. $l(x) = \dfrac{x + 3}{\sqrt{x + 4}}$
8. $m(x) = 5 + \sqrt{2x - 6}$
9. $n(x) = \sqrt{8 - 2x}$
10. $p(x) = \sqrt{x^2 + 4x - 5}$
11. $q(x) = \dfrac{1}{x^5}$
12. Which of the above are even functions?
13. Which of the above are odd functions?
14. Find the difference quotients of 1 and 2 (and 3)

1. Domain: all $\mathbb{R}$ Range: all $\mathbb{R}$ 2. Domain: all $\mathbb{R}$, Range:$\{x \in \mathbb{R} | x \leq -16\}$
3. Domain:$\{x \in \mathbb{R} | x \neq 4\}$ Range: all $\mathbb{R}$ 4. Domain:$\{x \in \mathbb{R} | x \neq \pm 3\}$ Range: all $\mathbb{R}$
5. Domain:$\{x \in \mathbb{R} | x \neq 3, x \neq 1\}$ Range: all $\mathbb{R}$ 6. Domain:$\{x \in \mathbb{R} | x \geq -4\}$ Range: $\{x \in \mathbb{R} | x \geq 0\}$
7. Domain:$\{x \in \mathbb{R} | x > -4\}$ Range: all $\mathbb{R}$ 8. Domain:$\{x \in \mathbb{R} | x \leq 3\}$ Range: $\{x \in \mathbb{R} | x \leq 5\}$
9. Domain:$\{x \in \mathbb{R} | x \geq 4\}$ Range: $\{x \in \mathbb{R} | x \geq 0\}$
10. Domain:$\{x \in \mathbb{R} | x \geq -5, x \leq 1\}$ or $\{x \in \mathbb{R} \Big| |x + 2| \leq 3\}$ Range: $\{x \in \mathbb{R} | x \leq 0\}$
11. Dom: $\{x \in \mathbb{R} | x \neq 0\}$ Range: all $\{x \in \mathbb{R} | x \neq 0\}$
12. #2 is even 13. #11 is odd 14 #1. 2; #2. $2x + h$; #3. $\frac{2(x^2+xh+4x+2h+9)}{(x-3)(x+3)(x+h-3)(x+h+3)}$