

Function Worksheet

Name:

Per:

Find the domain and range

1. $f(x) = 2x + 4$

2. $f(x) = (x + 4)(x - 4)$

3. $g(x) = \frac{x + 4}{x - 4}$

4. $h(x) = \frac{2x + 4}{x^2 - 9}$

5. $j(x) = \frac{x^2 + 4x}{x^2 - 4x + 3}$

6. $k(x) = \sqrt{x + 4}$

7. $l(x) = \frac{x + 3}{\sqrt{x + 4}}$

8. $m(x) = 5 + \sqrt{2x - 6}$

9. $n(x) = \sqrt{8 - 2x}$

10. $p(x) = \sqrt{x^2 + 4x - 5}$

11. $q(x) = \frac{1}{x^5}$

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)

Key:

1. Domain: all \mathbb{R} Range: all \mathbb{R} 2. Domain: all \mathbb{R} , Range: $\{x \in \mathbb{R} | x \geq -16\}$
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: $\{x \in \mathbb{R} | x \geq 3\}$ Range: $\{x \in \mathbb{R} | x \geq 5\}$
9. Domain: $\{x \in \mathbb{R} | x \leq 4\}$ Range: $\{x \in \mathbb{R} | x \geq 0\}$
10. Domain: $\{x \in \mathbb{R} | x \leq -5, x \geq 1\}$ or $\{x \in \mathbb{R} | |x + 2| \geq 3\}$ Range: $\{x \in \mathbb{R} | x \geq 0\}$
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. $\frac{2(x^2 + xh + 4x + 2h + 9)}{(x-3)(x+3)(x+h-3)(x+h+3)}$