

0.98 #1-20

1. yes

2. no - not a function

3. no - not a function

4. yes

5. yes

6. no

7. no } fails VLT

8. yes

9. $f(x) = \sqrt{x^2 + 4}$ D: $(-\infty, \infty)$

10. $h(x) = \frac{5}{x-3}$ D: $(-\infty, 3) \cup (3, \infty)$
 $\leftarrow x \neq 3$

11. $f(x) = \frac{3x-1}{(x+3)(x-1)}$ D: $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$
 $\leftarrow x \neq -3, 1$

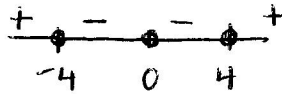
12. $f(x) = \frac{1}{x} + \frac{5}{x-3}$ D: $(-\infty, 0) \cup (0, 3) \cup (3, \infty)$
 $\leftarrow x \neq 0$ $\leftarrow x \neq 3$

13. $g(x) = \frac{x}{x^2-5x} = \frac{x}{x(x-5)}$ D: $(-\infty, 0) \cup (0, 5) \cup (5, \infty)$
 $\leftarrow x \neq 0, 5$

14. $h(x) = \frac{\sqrt{4-x^2}}{x-3}$ $\leftarrow 4-x^2 \geq 0$ $(2-x)(2+x) \geq 0$ $[-2, 2]$
 $\leftarrow x \neq 3$ \leftarrow $\frac{-1}{-2} \frac{1}{2}$
D: $[-2, 2]$

15. $h(x) = \frac{\sqrt{4-x}}{(x+1)(x^2+1)}$ $\leftarrow 4-x \geq 0$ $-x \geq -4$ $x \leq 4$ D: $(-\infty, -1) \cup (-1, 4]$
 $\leftarrow x \neq -1$

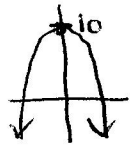
16. $f(x) = \sqrt{x^4 - 16x^2}$ $x^4 - 16x^2 \geq 0$
 $x^2(x^2 - 16) \geq 0$
 $x^2(x+4)(x-4) \geq 0$



$D: (-\infty, -4] \cup [0, 0] \cup [4, \infty)$

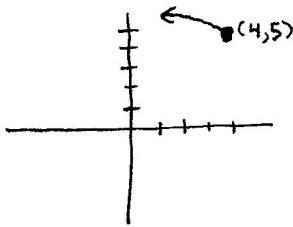
$\{0\}$

17. $f(x) = 10 - x^2$



$R: (-\infty, 10]$

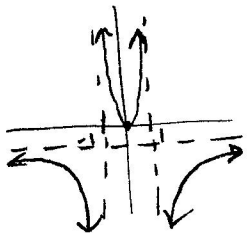
18. $g(x) = 5 + \sqrt{4-x}$



$R: [5, \infty)$

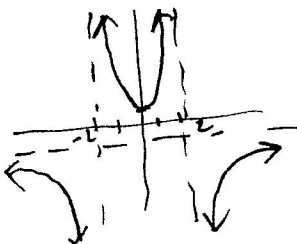
19. $f(x) = \frac{x^2}{1-x^2}$

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$R: (-\infty, -1) \cup [0, \infty)$

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



$R: (-\infty, -1) \cup [3/4, \infty)$