

Math 110 (Calculus)	workdho
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1. The function $f(x) = 5x^2 - 2x^2 + x + 9$ is a	
☒ A Polynomial	☐ B Cubic ☐ C Radical ☐ D Rational
2. The function $f(x) = \sqrt{x^3 - 1}$ is a	
☐ A Linear	☐ B Cubic ☒ C Radical ☐ D Rational
3. The function $f(x) = x^7$ is a	
☐ A Linear	☐ B Cubic ☒ C Power ☐ D Quadratic
4. The function $f(x) = 2x - 1$ is	
☒ A Linear	☐ B Cubic ☐ C Power ☐ D Quadratic
5. The function $f(x) = 3x^2 + 2x - 1$ is a	
☐ A Linear	☐ B Cubic ☐ C Power ☒ D Quadratic
6. The function $f(x) = 5x^3 - 3x^2 + x - 7$ is a	
☐ A Linear	☒ B Cubic ☐ C Power ☐ D Quadratic
7. If $f(x) = x^2 - 9$, then	
☒ A $D_f = \mathbb{R}$	☐ B $D_f = (-\infty, -3] \cup [3, \infty)$ ☐ C $D_f = [-3, 3]$ ☐ D $D_f = (-3, 3)$
8. If $f(x) = \sqrt[3]{x - 3}$, then	
☐ A $D_f = [3, \infty)$	☒ B $D_f = \mathbb{R}$ ☐ C $D_f = (-\infty, 3]$ ☐ D $D_f = (3, \infty)$
9. If $f(x) = \sqrt{x^2 - 4}$, then	
☐ A $D_f = (-\infty, -2) \cup (2, \infty)$	☐ B $D_f = (-2, 2)$
☐ C $D_f = [-2, 2]$	☒ D $D_f = (-\infty, -2] \cup [2, \infty)$
10. If $f(x) = \frac{x^2 - 1}{\sqrt{4 - x^2}}$, then	
☒ A $D_f = (-\infty, -2) \cup (2, \infty)$	☐ B $D_f = (-2, 2)$
☐ C $D_f = [-2, 2]$	☐ D $D_f = (-\infty, -2] \cup [2, \infty)$
11. If $f(x) = \frac{x^2 + 7}{x^2 + 5x + 6}$, then	
☐ A $D_f = (-3, -2)$	☐ B $D_f = (2, 3)$ ☐ C $D_f = \mathbb{R} \setminus \{2, 3\}$ ☐ D $D_f = \mathbb{R} \setminus \{-2, -3\}$
12. If $f(x) = \frac{x^2 + 7}{x^2 - 5x + 6}$, then	
☐ A $D_f = (-3, -2)$	☐ B $D_f = (2, 3)$ ☒ C $D_f = \mathbb{R} \setminus \{2, 3\}$ ☐ D $D_f = \mathbb{R} \setminus \{-2, -3\}$
13. If $f(x) = \frac{x + 7}{x^2 - 4}$, then	
☐ A $D_f = (-2, 2)$	☐ B $D_f = [-2, 2]$ ☒ C $D_f = \mathbb{R} \setminus \{-2, 2\}$ ☐ D $D_f = \mathbb{R} \setminus (-2, 2)$

14. Let $f(x) = x^3$, and $g(x) = x^2 \sqrt{x-1}$. Then $(\frac{f}{g})(x)$ is

☐ A $(\frac{f}{g})(x) = \frac{1}{x \sqrt{x-1}}$

☐ B $(\frac{f}{g})(x) = \frac{x^3}{\sqrt{x-1}}$

☒ C $(\frac{f}{g})(x) = \frac{x}{\sqrt{x-1}}$

☐ D $(\frac{f}{g})(x) = \frac{\sqrt{x-1}}{x}$

15. Let $f(x) = 2x^2 - x + 5$, and $g(x) = x$. Then $(f+g)(x)$ is

☐ A $(f+g)(x) = 2x^2 + 2x + 5$

☐ B $(f+g)(x) = 2x^2 - 2x + 5$

☒ C $(f+g)(x) = 2x^2 + 5$

☐ D $(f+g)(x) = (2x^2 - x + 5)x$

16. Let $f(x) = x^2 + x + 5$, and $g(x) = x$. Then $(f-g)(x)$ is

☐ A $(f-g)(x) = x + 5$

☐ B $(f-g)(x) = x^2 + 2x + 5$

☒ C $(f-g)(x) = x^2 + 5$

☐ D $(f-g)(x) = -x^2 - 5$

17. Let $f(x) = x^2 + 1$, and $g(x) = \sqrt{x+2}$. Then $(fg)(x)$ is

☐ A $(fg)(x) = x^2 + \sqrt{x+2}$

☒ B $(fg)(x) = (x^2 + 1)\sqrt{x+2}$

☐ C $(fg)(x) = \sqrt{(x^2 + 1)(x+2)}$

☐ D $(fg)(x) = x + 3$

18. Let $f(x) = \sqrt{x-2}$, and $g(x) = x^2$. Then $(g \circ f)(x)$ is

☐ A $(g \circ f)(x) = x^2 \sqrt{x-4}$

☐ B $(g \circ f)(x) = \sqrt{x^2 - 2}$

☐ C $(g \circ f)(x) = \sqrt{x^2 + x - 2}$

☒ D $(g \circ f)(x) = x - 2$

19. The equation of the line passes through the point $(2, 1)$ with slope 2 is

☒ A $y = 2x - 3$

☐ B $y = 2x - 1$

☐ C $y = 2x + 3$

☐ D $y = 2x + 1$

20. The slope of the line parallel to the line $y = 2x + 1$ is

☐ A -2

☒ B 2

☐ C $\frac{1}{2}$

☐ D $-\frac{1}{2}$

21. The slope of the line perpendicular to the line $y = 5x + 3$ is

☐ A -5

☐ B 5

☐ C $\frac{1}{5}$

☒ D $-\frac{1}{5}$

22. The equation of the line passes through $(1, 2)$ and $(3, 4)$ is

☐ A $y = x - 3$

☐ B $y = x - 1$

☒ C $y = x + 1$

☐ D $y = -x + 1$

23. Let $f(x) = 2x + 1$. Show that f is a function.