Trig Pre-Calc
Quiz 1.2 Review plus Fcn Fams Graphing

Key

Find the domain. Show work.

1. $f(x) = \sqrt{16 - x}$ $16 - x \geq 0$, $x \leq 16$, $(-\infty, 16]$

2. $f(x) = \frac{x}{x - 7}$ $x - 7 \neq 0$, $x \neq 7$, $(-\infty, 7) \cup (7, \infty)$

3. $f(x) = \frac{6}{x^2}$ $x^2 \neq 0$, $x \neq 0$, $(-\infty, 0) \cup (0, \infty)$

Find the range. Show work or a sketch.

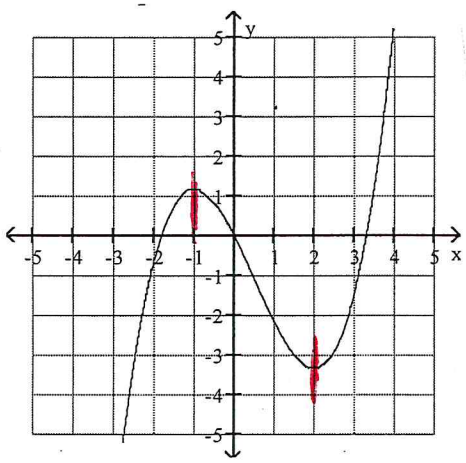
4. $f(x) = (x + 1)^2 - 1$ IL, ID, $= [-1, \infty)$

5. $f(x) = 7x - 11$ linear, $(-\infty, \infty)$

6. $f(x) = \sqrt{9 + x}$ $x \geq 0$, $[0, \infty)$ outputs are 0 and above

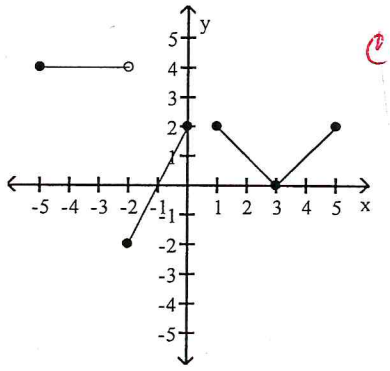
Use the graphs to identify increasing, decreasing or constant intervals.

7.



↑ $(-\infty, -1) \cup (2, \infty)$
↓ $(-1, 2)$

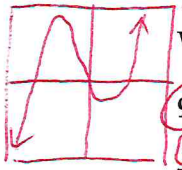
8.



constant $(-5, -2]$
↑ $(-2, 0) \cup (3, 5)$
↓ $(1, 3)$

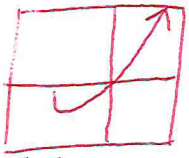
local max of 0 at x = 3
absolute min of −1.089 at $x = -4/3$

Using a calculator, identify any extrema using the proper notation. Include a sketch and window.



9. $f(x) = \frac{1}{3}x^3 + x^2 - 3x$. local max of 9 at $x = -3$, local min of $-5/3$ at $x = 1$, $[-10, 10]$ by $[-10, 15]$

10. $f(x) = x\sqrt{x+2}$ $[-4, 5]$ by $[-5, 5]$



Determine if the function is bounded above, bounded below, bounded, or unbounded.

11. $y = 0$ Bounded

12. $y = \sqrt{7 - x^2}$ Bounded

13. $y = 2^x + 5$ bounded below

Determine algebraically if the function is odd, even, or neither.

14. $f(x) = -0.21x^2 + |x| + 8$ even

15. $f(x) = x + \frac{3}{x}$ odd

16. $f(x) = 7x^4 + 7x + 5$ Neither

Determine all asymptotes. Show work. Label which are which.

17. $h(x) = \frac{(x - 3)(x + 3)}{x^2 - 1}$ VA $x^2 - 1 = 0$, $x^2 = 1$, $x = \pm 1$, $x = 1$, $x = -1$; HA $y = \frac{x^2}{x^2} = 1$, $y = 1$

18. $f(x) = \frac{x - 9}{x^2 + 8x}$ HA $y = \frac{x}{x^2}$, $y = 0$; VA $x(x + 8) = 0$, $x = 0$, $x + 8 = 0$, $x = -8$

19. $g(x) = \frac{x^2 + 8x - 9}{x - 9}$ HA $y = \frac{x^2}{x}$ None; VA $x - 9 = 0$, $x = 9$

Graph each using transformations. Show all tables. Graph the final table. Give D & R.

20. $y = \frac{-2}{x+3} + 1$

21. $y = \frac{1}{2}\sqrt{-(x - 2)} + 4$

22. $y = \left|\frac{1}{3}(x + 4)\right| - 2$