

Review

September 26, 2015 6:21 PM

1.

Given $f(x) = \sqrt{x}$ and $g(x) = x + 4$, find

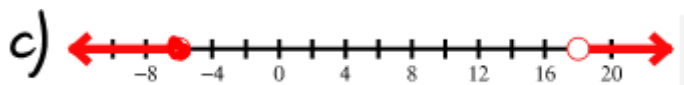
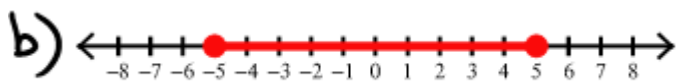
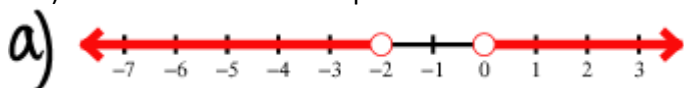
- $f(g(x))$ and state the domain and range.
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2.

Let $f(x) = \frac{x^3}{x^2 + 1}$. Find x if $f^{-1}(x) = 2$.

3. Express with

- interval notation
- set notation
- as an absolute value equation



4. Solve the following and sketch on the number line

a) $|4n - 10| \leq -2$

b) $|8 + 9x| > 53$

c) $9|-6a - 6| - 9 < 45$

5. Find the domain of the following

a) $f(x) = \sqrt{x^2 - x - 2}$

b) $f(x) = \sqrt{-x^2 + 3x + 10}$

c) $f(x) = \frac{x^3 + 1}{x^3 - x}$

$$d) f(x) = \sqrt{\frac{x+2}{x-5}}$$

6. Sketch the following piecewise graphs

$$a) f(x) = \begin{cases} x+1 & x < 0 \\ \sqrt{x} & x \geq 0 \end{cases}$$

$$b) f(x) = \begin{cases} x-1 & x \neq 2 \\ 3 & x = 2 \end{cases}$$

$$c) f(x) = \begin{cases} x^2 & |x| < 1 \\ 3 & |x| \geq 1 \end{cases}$$

7. A restaurant patron has decided to leave a 15% tip for meals costing up to \$40, an 18% tip for meals costing at least \$40 but less than \$100, and a 20% tip for meals costing \$100 or more. Write a piecewise function to describe the total amount t the patron will pay in terms of the meal cost c

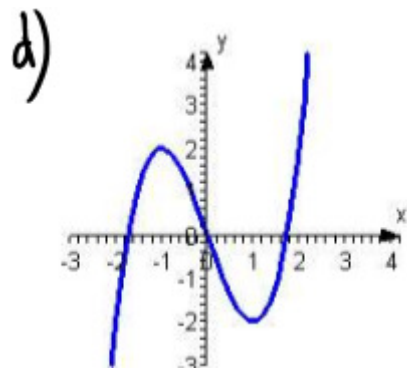
8. At Pace University, students are allotted 20 free pages of printing per week. After that, they pay \$.10 a sheet for each page up to 40 pages, \$.07 a sheet for each page up to 70 pages, and \$.05 for each page after that.

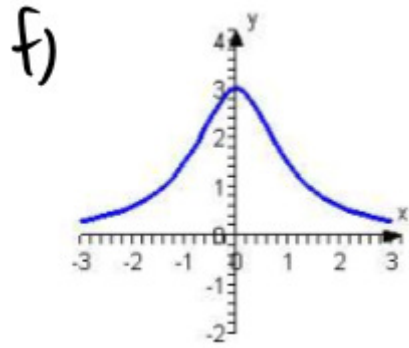
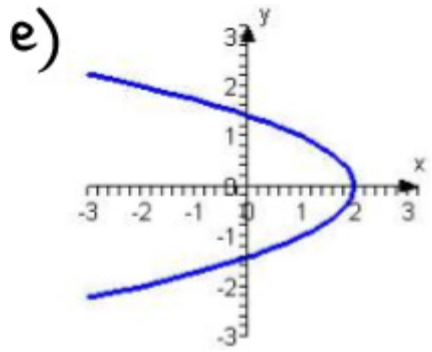
9. Decide on the symmetry of each of the following

$$a) f(x) = x^3 - x$$

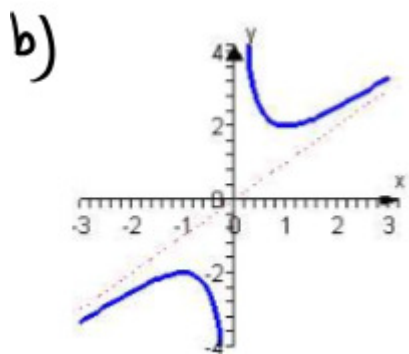
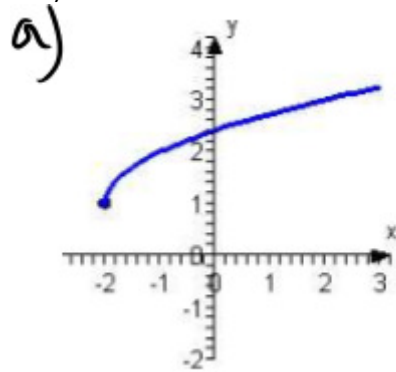
$$b) f(x) = \sqrt{x^2 + 25}$$

$$c) f(x) = 2x^2 - 4x + 2$$

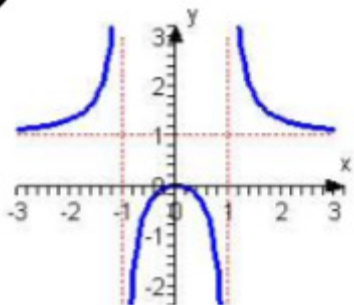




10. For the following graphs find
- Domain
 - Range
 - Intervals of increase and decrease
 - State the end behaviour of each graph



c)



11. Use function notation correctly for the following questions

$$f(x) = 3x - 5.$$

$$g(x) = \frac{2-x}{2+x}$$

a) $f(-2)$

b) $\frac{f(x+h) - f(x)}{h}$

c) $g(g(0))$

d) $(f \circ g)(4)$

12. For the following function $f(x)$

- Graph $|f(x)|$
- Graph $|f(x)| - 1$
- For the point $(3, -1)$ find $-2f^{-1}(3x - 6) + 5$

