PRE-CALCULUS

Chapter 1 Practice Test

Assg#_____

Name_____Date_____Per_____

Sketch the graph of **$f(x)= -(x+ 3)^2 - 2$** to answer problems 1 – 4. The sketch will not be graded.

1) Without graphing the inverse, determine if the inverse is a function and explain.
2) Determine if the function has a maximum or minimum. What are the coordinates of this point?
3) Determine interval(s) for which the function is increasing, decreasing, constant (if any).
4) Find the domain and the range of f(x) in interval notation.

5) Classify the function f(x) = $f(x) = 2x^4 - 3x^2 - 1$ **(Justify your answer by showing all the work neatly).**

A) Even B) Odd C) Both D) Neither

6) Classify the function f(x) = $f(x) = -4x^4 - 2x - 1$ **(Justify your answer by showing all the work neatly).**

A) Even B) Odd C) Both D) Neither

7) Graph: $f(x) = (x-4)^2 - 3$

8) Graph: $f(x) = -\sqrt{x+3} + 4$

9) Determine the value of a) f(3), b) f(0), and c) f(-1) for the following piecewise function: **(Justify your answer by showing all the work neatly).**

$$f(x) = \begin{cases} x - 5 & \text{if } x \geq 3 \\ 2x^2 + 6 & \text{if } x < 2 \end{cases}$$

a) b) c)

10) Use **composite functions** to determine if the following functions are inverses of each other. **(Justify your answer by showing all the work neatly).**

a) $f(x) = 4x + 9 \ and \ g(x) = \frac{x-9}{4}$

b) $f(x) = \frac{3}{x-4} and \ g(x) = \frac{3}{x} - 4$

11) Find the inverse of $f(x) = (x+2)^2 + 5$. **(Justify your answer by showing all the work neatly).**

12) Graph $f(x) = (x+2)^2 + 1$, y=x, and the inverse of f(x). Is the inverse of f(x) a function?

13) Some of the points on the graph of f(x) are (-3,2), (5,6), and (-1,8).

a) If f(x) is an odd function, what points would also be on the same graph?

b) If f(x) is an even function, what points would also be on the same graph?

14) Lola is building a sidewalk around her rectangular swimming pool. The sidewalk will have a uniform width throughout. The dimensions of the swimming pool are 20 feet by 12 feet. Express the area of the swimming pool with the sidewalk as a function of its width 'x". **(Justify your answer by showing all the work neatly).**

15) Find and simplify the difference quotient $\frac{f(x+h)-f(x)}{h}$, $h \neq 0$, for $f(x) = 3x^2 + 3x - 5$. **(Justify your answer by showing all the work neatly).**

Problem 16 – 18: Write the equation of a line in slope-intercept form for the line with the given information: **(Justify your answer by showing all the work neatly).**

16) Passing through $(-3,5)$ and $(1, -2)$.

17) Parallel to $y = -5x + 2$ and passing through $(-4, 6)$.

18) Perpendicular to $y = \frac{2}{3}x - 4$ and passing through $(1, -3)$.

19) Find the average rate of change of $f(x) = 3x^2 - 3x + 1$ from $x_1 = 3$ *to* $x_2 = -2$. **(Justify your answer by showing all the work neatly).**

20) Find the **domain** of the composite function f(g(x)) given $f(x) = \frac{-2}{x-3}$ and $g(x) = \frac{3}{x}$. **(Justify your answer by showing all the work neatly).**

21) Find the intercepts of the graph of the following equation: -7x + 21y – 42 = 0

Chapter 1 Practicie Test – ANSWERS

1) Circle One: Yes/No. Explain:

2) **Circle One:** Max/Min. (,)

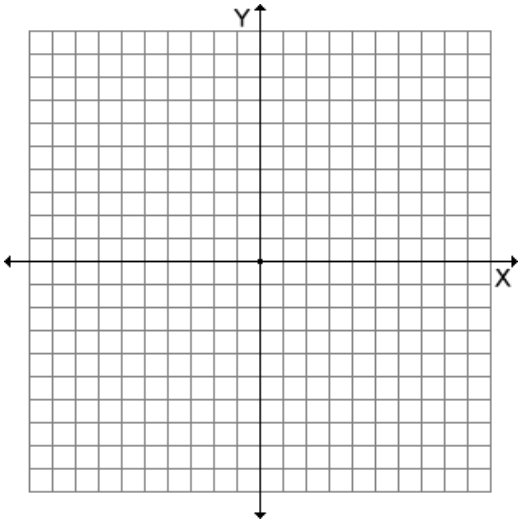
3) Inc: Dec. Constant:

4) Domain: Range:

5)

6)

7)



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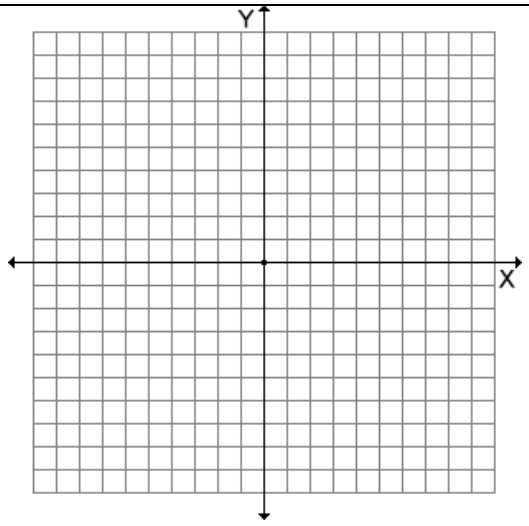
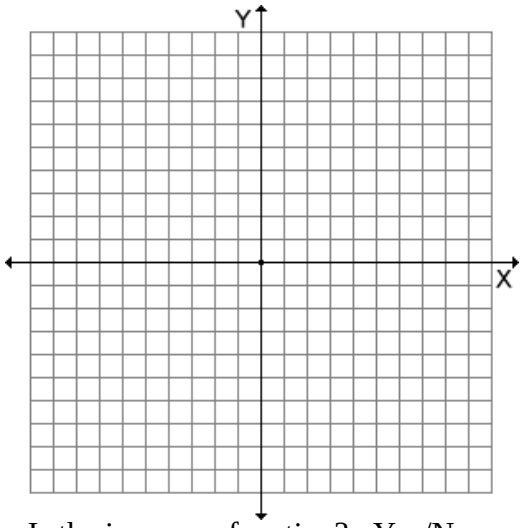


9) a) b) c)

10) a) yes/no b) yes/no

11)

12)



Is the inverse a function? Yes/No

13) a) b)

14)

15)

16)

17)

18)

19)

20)

21) x-int (,) y-int (,)