NAME:_____

TA:_____

DISCUSSION CLASS TIME:_____

INSTRUCTIONS

This exam consists of 15 problems. All problems have point values indicated. For multiple choice problems; circle your answer choice. Calculators can be used but not shared. Cell phones cannot be used as calculators.

---

page 1 _____ 19pts

page 2 _____ 19pts

page 3 _____ 19pts

page 4 _____ 19pts

page 5 _____ 19pts

page 6 _____ 19pts

page 7 _____ 19pts

_____

+5

TOTAL: _____ 100 pts (105 possible)

1. Solve the following equation using your graphing calculator: $|2x-1| = 7.34-|x-1|$
Round to 4 decimal places, when necessary.

Answer: 1)_____7 pts

2. A ball is shot up in the air and its height, h, above the ground in feet is given by the function $h(x) = -16x^2 + 44.25x$, where s is the number of seconds the ball has been in flight. Graph this function and find the maximum height that the ball atains. Round your answer to four decimal places.

Answer: 2)_____7 pts

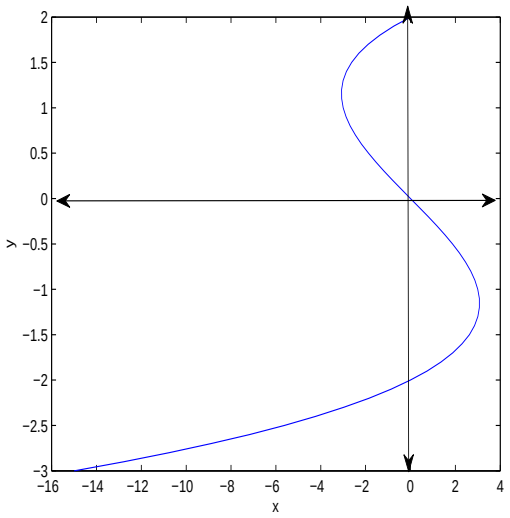
3. Determine whether the equation $y = (x-9)(x+1) + .34$ defines y as a function of x.

Circle your answer choice. (5 pts)

(a) No

(b) Yes

4. Determine if the graph below is the graph of a function.



Circle your answer choice. (5 pts)

(a) No, it is not a function

(b) yes, it is a function

5. State the domain of $\boldsymbol{f}$ in interval natation: $\boldsymbol{f(x) = \frac{\sqrt{x+5}}{(x+7)(x-8)}}$

Answer: 5)_____7 pts

6. Use your graphing calculator to find the local macimum of $\boldsymbol{f(x) = .001x^3 - .1x^2 + .95}$ Round the coordinates to **4** decimal places.

Answer: Local maximum at (,). 7 pts

7. For $f(x) = \sqrt{x-3}$ and $g(x) = x^2 - 5$; find $(g \circ f)(x)$ and state the domain in interval notation.

Answer: 7) $(g \circ f)(x) =$ _____ 4 pts

Domain: _____ 4 pts

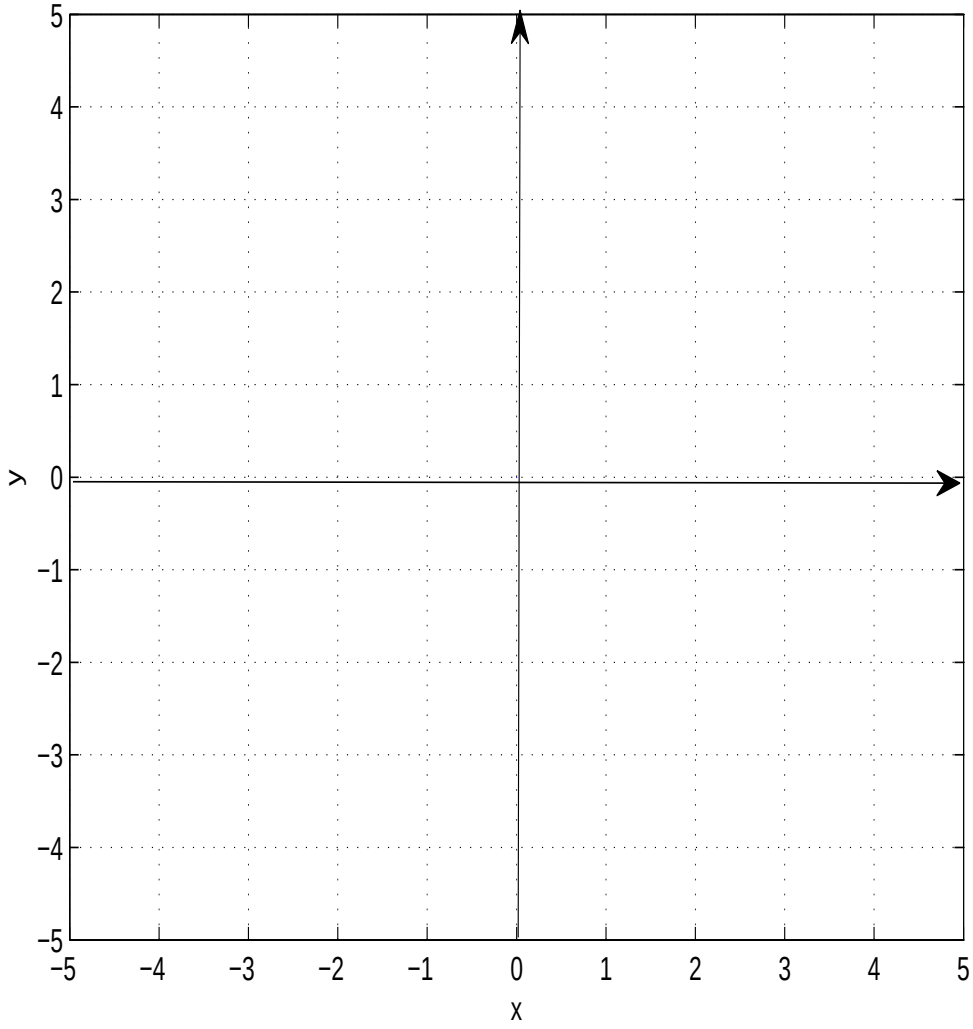
8. For $f(x) = \sqrt{7x+3}$, find f^{-1} and state the domain of f^{-1} in interval notation.

Answer: 8) $f^{-1}(x) =$ _____ 4 pts

Domain: _____ 4 pts

9. (7pts) Graph:

$$g(x) = \begin{cases} x^2 - 4 & \text{if } x < -1 \\ 1 & \text{if } -1 \leq x < 3 \end{cases}$$



10. Describe how to transform the graph of $\boldsymbol{f}$ into the graph of $\boldsymbol{g}$.

$$\boldsymbol{f(x) = (x+2)^2 \; ; \; g(x) = -(x-4)^2}$$

Circle your answer choice. (6 points)

(a) Shift the grah of $\boldsymbol{f}$ down **6** units and reflect across the y-axis.

(b) Shift the graph of $\boldsymbol{f}$ right **4** units.

(c) Shift the graph of $\boldsymbol{f}$ right **6** units and reflect across the x-axis

(d) None of the above

11. Fill in the blanks: The graph of $\boldsymbol{y = 5\sqrt[3]{x-.7}+10}$ can be obtained from the graph of $\boldsymbol{y = \sqrt[3]{x}}$ by shifting **.7** units to the _____, streching vertically by a factor of _____, and then shifting _____ units up.
(6 points: 2pts for each correct answer.)

12. Let $\boldsymbol{f(x)}$ compute teh time in hours to travel $\boldsymbol{x}$ miles at **45** miles per hour. What does $\boldsymbol{f^{-1}(x)}$ compute?

Circle your answer choice. (6 points)

(a) The hours taken to travel **45**miles

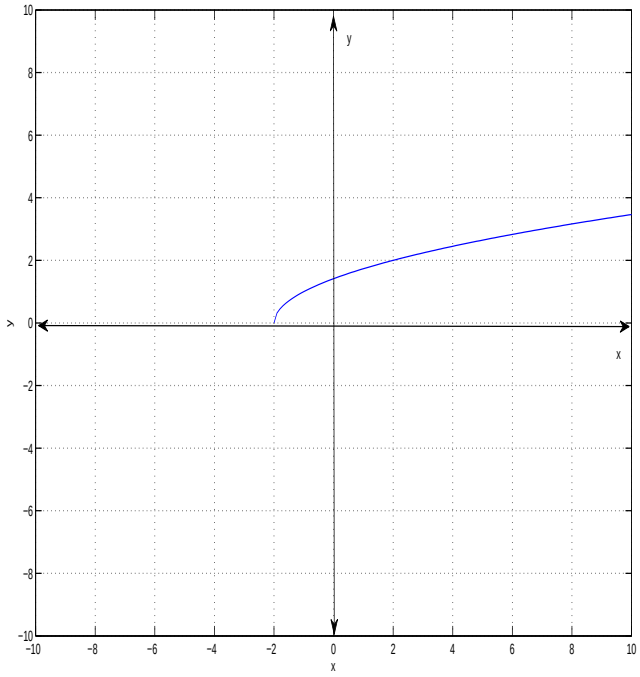
(b) The miles traveled in $\boldsymbol{x}$ hours

(c) The miles traveled in **45** hours

(d) The hours atken to travel $\boldsymbol{x}$ miles

(e) None of the above

13. The graph of a function $\boldsymbol{f}$ is on teh coordinate system below. Graph the inverse of the function $\boldsymbol{f}$ on the same coordinate system. Use a dashed curve for the inverse.



14. Compute and simplify the difference quotient $\frac{\boldsymbol{f(x+h)-f(x)}}{\boldsymbol{h}}$ for $\boldsymbol{f(x) = 5x^2 + 7x - 10}$

Answer: 14)_____7 pts

15. Sue invested **$536** in an account earning **7.3%** annual interest. How much should Sue invest at **5%** annual interest so that she obtains a return of **6%** on the total amount? Let $\boldsymbol{x}$ represent the amount invested at **5%**.

The equation that would lead to the anser is:
Circle your answer choice. (7 pts)

(a) $\mathbf{.073(437) - .04}\boldsymbol{x} = \mathbf{.05}(\boldsymbol{x} + \mathbf{437})$

(b) $\mathbf{.073(536} + \boldsymbol{x}) + \mathbf{.05(536} - \boldsymbol{x}) = \mathbf{.06}\boldsymbol{x}$

(c) $\mathbf{.073(437)} + \boldsymbol{x}) + \mathbf{.04(437} - \boldsymbol{x}) = \mathbf{.05}\boldsymbol{x}$

(d) $\mathbf{.073(536) + .05}\boldsymbol{x} = \mathbf{.06}(\boldsymbol{x} + \mathbf{536})$

(e) None of the above