Math 190 Final Exam No Electronics

Name: _____ EMPLID: _____

1. (4 points) Evaluate $h(\frac{1}{2})$ when $h(t) = t + \frac{3}{t}$. Simplify your answer completely as one fraction.

1. _____

2. (4 points) Evaluate and simplify $\frac{2}{3}(6 - \frac{3}{2}) - \frac{1}{2}$ as one fraction.

2. _____

3. (4 points) Simplify $\left(\frac{y^{-1}z^{-5}}{y^{-4}}\right)$ and eliminate negative exponents.

3. _____

4. (4 points) Find the side labeled x

4. _____

5. (4 points) Evaluate $\log_3(81)$

5. _____

6. (4 points) Evaluate $81^{-\frac{1}{2}}$ and simplify completely.

6. _____

7. (4 points) Find the maximum value of $f(x) = -\frac{1}{2}x^2 - 4x + 10$.

7. _____

8. (4 points) Sketch of the graph of $f(x) = -|x + 7|$.

9. (4 points) Find an angle between 0 and 360° that is coterminal with 770°.

9. _____

10. (4 points) Solve $\frac{2}{5}x - 1 = \frac{3}{10}x + 2$ for x.

10. _____

11. (4 points) Solve $F = G\frac{mM}{r^2}$ for M.

11. _____

12. (4 points) If $f(x) = 7 - 8x$ find $f^{-1}(-17)$.

12. _____

13. (4 points) Find the radius of the circle with equation equation $x^2 + y^2 + 6x - 4y + 10 = 0$.

13. _____

14. (4 points) Find an equation of the line that passes through the points $(-1, -2)$ and $(7, 6)$.

14. _____

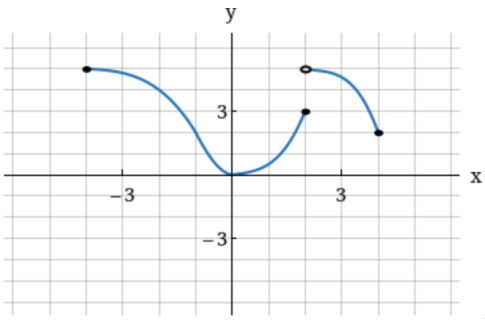
15. (4 points) Find all real solutions of $x^2 - 14x = -33$.

15. _____

16. (4 points) Given $f(x) = \begin{cases} 10 & x \leq 2 \\ 5 - x^2 & x > 2 \end{cases}$. Evaluate the net change $f(5) - f(-5)$.

16. _____

17. (4 points) Sketch the graph of $h(x) = -x^2 + 6x$.

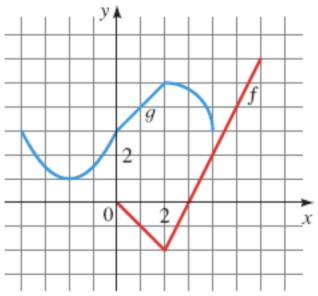
18. (4 points) The graph of a function g is given 

. Find $g(-2)$.

18. _____

19. (4 points) Find all real solutions of $\frac{1}{x-2} = \frac{5}{6}$.

19. _____

20. (4 points) Use the graphs of f and g 

to evaluate $f(g(1))$

20. _____

21. (4 points) Sketch the graph of $f(x) = |x| - x$.

22. (4 points) Solve the inequality $\frac{2}{5}x + 9 < \frac{6}{5} - 2x$.

A. $(-\infty, -\frac{13}{4})$

B. $(-\infty, \frac{13}{4})$

C. $(\frac{13}{4}, \infty)$

D. $(-\frac{13}{4}, \infty)$

E. none of these.

22. _____

23. (4 points) Evaluate and simplify $\frac{8x-1}{x+4} - 2$ as one reduced fraction.

A. $\frac{6x+9}{x+4}$

B. $\frac{6x-9}{x+4}$

C. $\frac{6x-7}{x+4}$

D. $\frac{6x+7}{x+4}$

E. none of these

23. _____

24. (4 points) Perform the division $\frac{2t+4}{t-1} \div \frac{t+2}{t^2-1}$ and simplify completely.

A. $\frac{2t+4}{t^2-1}$

B. $\frac{t+1}{2}$

C. $2t + 2$

D. $t + 1$

E. none of these

24. _____

25. (4 points) Multiply $(8s + 10)(2s - 6)$ and simplify completely.

A. $16s^2 - 28s - 60$

B. $16s^2 + 48s + 60$

C. $16s^2 + 68s - 60$

D. $16s^2 + 28s - 60$

E. none of these

25. _____

26. (4 points) Simplify $(17x^2 - 10x + 1) - 5(3x^2 - 2x + 1) + 1$ completely.

A. $2x^2 - 4$

B. $2x^2 - 20x - 4$

C. $2x^2 - 20x - 6$

D. $2x^2 - 3$

E. none of these

26. _____