TEST #2 - CALCULATOR PORTION

Math 132 **Name:** _____

Problem	**1**	**2**	**3**	**4**	**5**	**Total**
Possible Score	**25**	**25**	**40**	**30**	**30**	**150**
Your Score						

SHOW ALL WORK. Any solution that is not accompanied by the appropriate work necessary for solving the problem will receive no credit. If you need more space, you may use the back of the page.

1. (25 pts) Find the zeros of $f(x) = 9x^3 - 15x^2 + 2$. You must show all of your work at each step. You may not find the zeros by graphing the function with your graphing calculator and having the calculator compute the zeros for you.

2. (25 pts) Find the x-values that satisfy $\dfrac{x}{x-4} \leq \dfrac{1}{x+5}$.

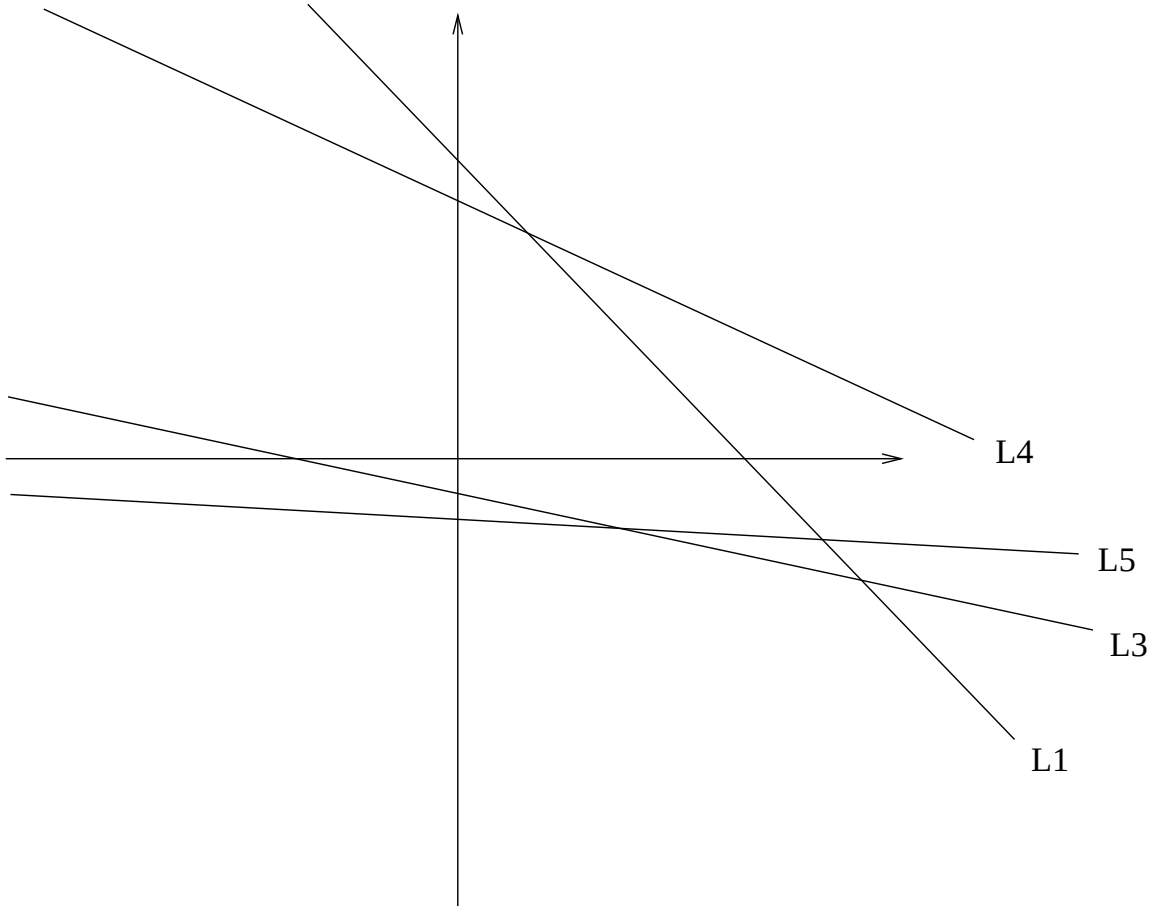
3. Suppose L_1 is the line that passes through the points $(10, -3)$ and $(5, 5)$. Suppose L_2 is the line that passes through the points $(1, 2)$ and $(-7, 7)$.

   (a) (16 pts) Are L_1 and L_2 parallel, perpendicular, or neither? **Show your work.**

   (b) (12 pts) Find the equation of the line L_3 that is parallel to L_2 and passes through the point $(1, -2)$.

PROBLEM #3 CONTINUED ON THE NEXT PAGE

(c) (12 pts) The following graph contains the lines L_1 and L_3 (which were described on the previous page) and lines L_4 and L_5 (which have not been described yet). Find the best equation for L_4 and L_5 from the list of equations below the graph (each line will have exactly one equation matched with it).



i. $y = -x - 3$

ii. $y = -x + 16$

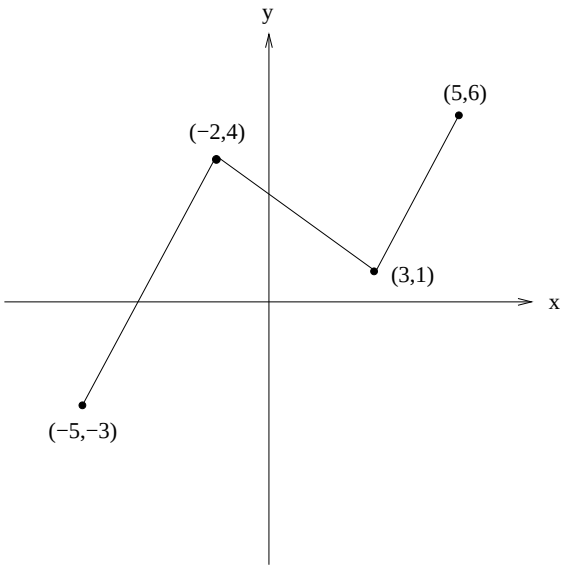
iii. $y = -\frac{1}{4}x - 1$

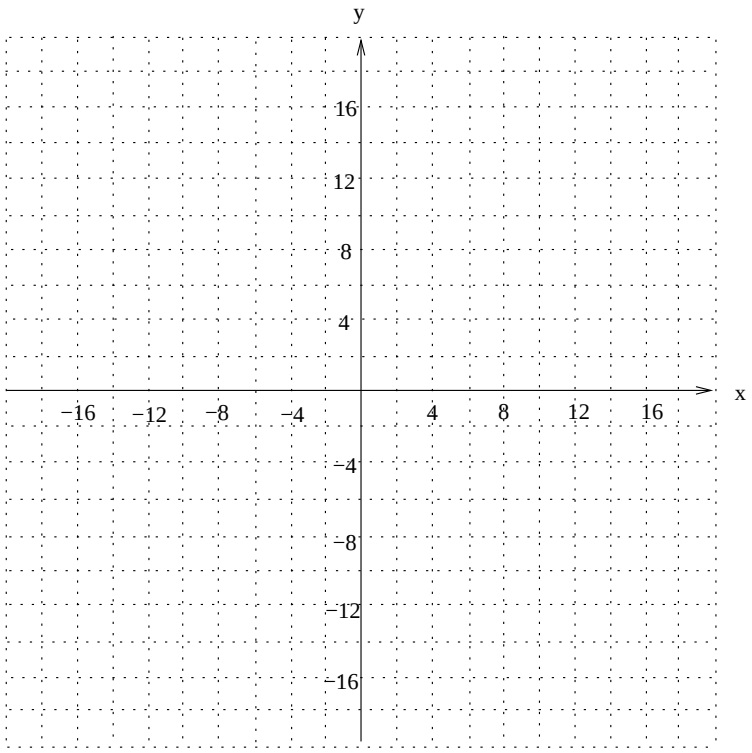
iv. $y = -x + 10$

v. $y = -2x + 8$

vi. $y = -\frac{1}{4}x - 3$

4. (30 pts) Below is the graph of $y = f(x)$. On the graph paper at the bottom of the page, graph the function $y = 2f\left(-\frac{1}{3}x + 1\right) - 3$.





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SHOW ALL WORK. Any solution that is not accompanied by the appropriate work necessary for solving the problem will receive no credit. If you need more space, you may use the back of the page.

5. (30 pts) Sketch the graph of $f(x) = (2x + 5)^2(-6x^2 + 7x - 2)$. Be sure to label all x-intercepts and y-intercepts.