

9. Find the maximum value of the function: $P(x,y) = 8x + 10y$
subject to these constraints:

$$x \geq 0, y \geq 0$$

$$2x + 3y \leq 12$$

$$x + y \leq 5$$

- Solve the following word problems.

10. Moe's score is more than 15 points away from Larry's. If Larry scored 68, what is the range of Moe's score?

11. Harry must take 2 exams from Professor Snape this term. Snape counts test 1 as $\frac{2}{3}$ of Harry's grade and test 2 as $\frac{1}{3}$ of the grade. If Harry scored 69 on test 1, what range of scores does Harry need on test 2 (a maximum of 100 points) so his average is between 70 and 79 inclusive?

12. Professor Walker opens a business employing supervisors and sales staff. According to his contract, each supervisor must have 2 sales and 3 calls a day. Each sales person must have 6 sales and 3 calls a day. The home office requires Professor Walker to have enough staff for at least 24 sales and at least 18 calls per day. If a supervisor makes \$90 per day and a sales person makes \$100 per day, then how many of each should be employed to satisfy the constraints and to minimize the daily labor cost?

13. Walker's Water Waders is a small manufacturing plant that makes three types of inflatable boats: one-person, two-person, and four-person models. Each boat requires the service of three departments: cutting, assembly, and packaging. The cutting, assembly, and packaging departments are allowed to use a total of 380, 330, and 120 person-hours per week, respectively. The time requirements for each boat and department are specified in the following table. Determine how many of each type of boat Walker's must produce each week for its plant to operate at full capacity.

Department	Time (person-hr)		
	One-person boat	Two-person boat	Four-person boat
Cutting	0.6	1.0	1.5
Assembly	0.6	0.9	1.2
Packaging	0.2	0.3	0.5