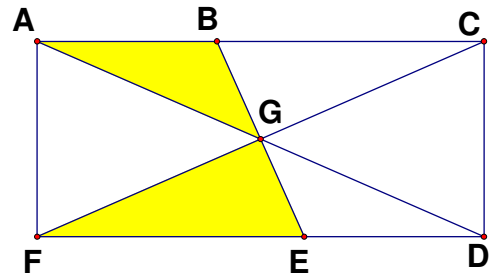


Problem Solving #4  
Advanced Math Quarter 1

1. You need to buy some filing cabinets. You know that Cabinet X costs \$10 per unit, requires six square feet of floor space, and holds eight cubic feet of files. Cabinet Y costs \$20 per unit, requires eight square feet of floor space, and holds twelve cubic feet of files. You have been given \$140 for this purchase, though you don't have to spend that much. The office has room for no more than 72 square feet of cabinets. How many of which model should you buy, in order to maximize storage volume?

2. What percent of the area of the rectangle ACDF is shaded?



3. Solve the inequality  $x^2 + 5x < -6$

4. Consider a triangular array of the natural numbers in which 1 is the sole element in the first row and each subsequent row has two more elements than the previous row. In what row would you find number 14,878?

				1				
			2	3	4			
		5	6	7	8	9		
10	11	12	13	14	15	16		