

Homework #6

1. Using the Euclidean Algorithm find the GCD of 24885 and 6952.
2. Reduce the fraction $\frac{6952}{24885}$.
3. Use the Euclidean Algorithm to find a solution of the Diophantine equation $17x + 13y = 1$.
4. Use the result of problem 3 to find all solutions of the given equation.
5. It is easily checked that $x = -3, y = 10$ satisfy the equation $23x + 7y = 1$. Use this fact to find a solution of the equation $23x + 7y = 5$.
6. A teacher has to grade 600 papers. If the first three hundred were graded at the rate of 60 papers per hour and the second three hundred at rate of 30 papers per hour. What was the overall rate for grading the 600 papers?
7. Not long ago a marketing newsletter stated that 1.8 billion slices of frozen pizza are sold each year. It further stated that this amount of pizza would cover an area of 511,366 square miles. From the data given find out the average size of the pizza slices sold.
8. Estimate the rate of growth of your hair in inches per month
9. Use the result of #8 to find the rate of growth in miles per hour.

10. The great pyramid of Khufu in Egypt has a square base with sides approximately 750 feet and height approximately 480 feet.
- (a) Using the formula for the volume V of a pyramid, $V = \frac{1}{3} (\text{area of base})(\text{height})$, compute the approximate volume of this pyramid in cubic feet.
- (b) Assuming that the average size of the blocks in the pyramid is 2.5 feet by 4 feet by 4 feet, calculate the number of such blocks in the pyramid.
- (c) If it took 20 years to build how many blocks were put into place, on the average, in one day?
- (d) Suppose that these blocks are laid on the 4×4 faces to cover the football field in the stadium. Assume that the dimensions of the field are 300 ft. \times 150 ft. and that this procedure is continued in layers until all of the blocks are used. What is the height of the resulting pile of blocks?

