

APPLICATIONS HOMEWORK

1. Tickets for a barbecue were \$8 for a single ticket or \$15 for a couple. If 144 people attended the barbecue and \$1098 was collected from ticket sales, how many couples and how many singles attended?
2. A boat went 15 miles downstream in 1 hour and then returned upstream to its dock in $5/3$ hours. If the current of the stream was constant, find the speed of the boat in still water and the speed of the current.
3. Two different routes between two cities differ by 20 miles. Bill and Low made the trip between the cities in exactly the same time. If one traveled the shorter route at 50 mph and the other traveled the longer route at 55 mph, how long is each route?
4. The perimeter of a triangle is 54 centimeters. Find the lengths of the three sides if the longest one is twice as long as the shortest one and the other one is 6 centimeters more than the shortest one.
5. A class of 32 students was made up of people who were all 18, 19 and 20 year olds. The average of their ages was 18.5. How many of each age were in the class if the number of 18-year-old was six more than the combined number of 19- and 20-year-olds?
6. Find the equation of the parabola $y = ax^2 + bx + c$ that passes through the points (0, -4), (1, 1), and (2, 10).
7. Find the equation of the parabola $y = ax^2 + bx + c$ that passes through the points (1, 2), (2, 1), and (3, -4).

8. Find the equation of the circle $x^2 + y^2 + Dx + Ey + F = 0$ that passes through the points $(0,0)$, $(4,0)$, and $(2,-2)$.
9. Find the equation of the circle $x^2 + y^2 + Dx + Ey + F = 0$ that passes through the points $(3,-1)$, $(-2,4)$, and $(6,8)$.
10. Ron, Kent, and Sharon assembled 734 newsletters. Ron could assemble 124 per hour, Kent 118 per hour, and Sharon 132 per hour. One morning the three worked a total of 6 hours. If Ron worked 2 hours, how long did Kent and Sharon work?
11. The Algebraville Equations sold 9,812 tickets to their opening day baseball game. The prices for lower box seats, upper box seats, and bleacher seats are \$12, \$8, and \$4 respectively. The Equations sold five less than twice as many upper box seats than lower box seats. The ticket revenue collected from the game was \$87,516. How many of each type of ticket were sold?
12. Oscar invests \$20,000 in three investments earning 5%, 7%, and 10% per year. He invests \$9000 more in the 10% investment than in the 5% investment. How much does he have invested at each rate if he receives \$1690 in interest the first year?
13. Stewart's Metals has three silver alloys on hand. One is 22% silver, another is 30% silver, and the third is 42% silver. How many grams of each alloy is required to produce 80 grams of a new alloy that is 34% silver if the amount of 30% alloy used is twice the amount of 22% alloy used?