

MA 220, Lesson 6, Sections 2.1 and 2.3
Solving Applied Problems

Steps for solving an applied problem

1. Read the problem; carefully noting the information given and the questions asked.
2. Let a variable represent the unknown (or one of the unknowns) you are asked to find.
3. Think of a sentence or formula that relates the information given and the unknown(s).
4. From this plan, write an equation and solve.
5. Check your solution to ensure it is reasonable.

Ex 1: The sum of two consecutive even integers is 166. Find the two integers.

n = smallest of two integers

$n + 2$ = largest of two integers

Plan: smallest + largest = sum

Ex 2: The bill for an auto repair was \$403 (before any taxes). The cost of part was \$225. The mechanic charged \$50 for the first hour of labor, then \$32 per hour for each additional hour of labor to repair the car. How many hours total did it take to repair the automobile?

h = total number of hours

Plan: parts + first hour's labor + additional labor = total bill before taxes

Ex 3: (When an object is projected upward to its maximum height, the velocity of the object at the time it reaches that maximum height is 0.)

The velocity of the water of a fountain projecting the water vertically upward with an initial velocity of 70 feet per second is given by the function $v(t) = 70 - 32t$, where t is time in seconds. After how many second does the water reach its maximum height?

Ex 4: A sales representative drove 391 miles from his office to an appointment. He usually averaged 66 miles per hours. However, he had to slow to 54 miles per hour during a stretch of the road due to construction. The total time of the trip was 6 hours 10 minutes (excluding any stopped time). Find the amount of driving time at each speed.

	Distance	Rate	Time
Travel at faster rate			
Travel in construction zone			

Ex 5: Jeff can bike to work in $\frac{3}{4}$ hour. When he takes the bus, the trip takes $\frac{1}{4}$ hour. If the bus averages 20 miles per hour faster than Jeff rides his bike, how far is it to his workplace?

Ex 6: A large rectangular church window has a perimeter of 40 feet. The height of the window is 4 feet more than the width of the window. Find the width and height of the window.