Please use lots of space and explain your answers, showing clearly any work you had to do. Each question is worth 3 points.

Section 5.4 Amortized Loans

(1) You buy a car for $19\,600$ and take out a loan for the full amount. The bank charges 6% interest. What are the monthly payments to pay off the car in 10 years?

(Hint: use the amortized loan formula $pymt((1+i)^n - 1)/i = P(1+i)^n$ coming from FV annuity = FV compound interest. Here P is the loan amount, i is the periodic interest rate and n is the number of periods.)

(2) In Question 1, suppose you borrowed $19\,600$ from this bank and paid it back in one lump sum 10 years later. How much must you pay?

(Hint: this is the $P(1+i)^n$ amount.)

(3) For Question 1 make an amortization schedule for the first two payments by filling in the bottom two rows of this table:

Payment number	Principal portion	Interest portion	Total payment	Balance
0				$19\,600$
1				
2				

(Steps: write in the total payments from Question 1. Use the $I = Prt$ simple interest formula to find the interest portion for the first month. Subtract this interest from the total payment to get the principal portion. Subtract the principal portion from the balance to get the new balance and repeat.)

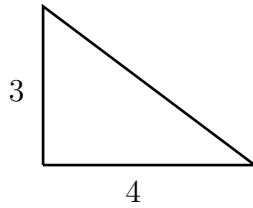**(4)** You take out a $250\,000$ mortgage at 8% interest for 20 years. What are your monthly payments?

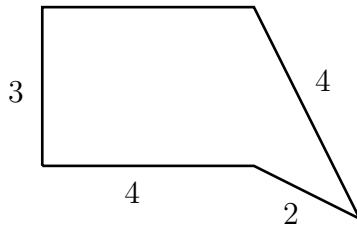
Section 8.1 Perimeter and Area

(5) A rectangle measures 7 feet by 12 feet. Find the area and perimeter of this rectangle, using the correct units.

(Hint: area measurements need square units and length measurements need regular length units.)

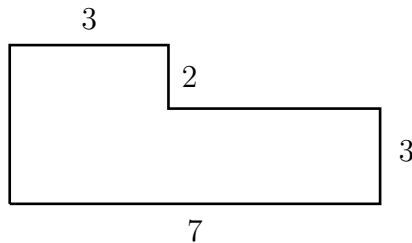**(6)** Find the area and perimeter of this right triangle. The units are inches.

(7) Find the perimeter and area of this polygon. The units are centimeters.

(8) For a circle of radius 4 meters find as an accurate decimal in the correct units:

   (a) its circumference,

   (b) its diameter,

   (c) its area.

(9) Find the perimeter and area of this polygon. The units are miles.

(Hint: find the two missing side lengths first. Use two rectangles to get the area.)

If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes and section in the textbook.

- Check if you get the right answer for a similar odd-numbered question in the text-book (answers at the back of the book).

- Ask me about it after class.

- Come to my office hours: Mon 11:30 - 12:30, Wed 11:30 - 12:30 in CP 317.

- Go to the Math Tutorial Lab in-person in CP 303 or online.