Math 123-02
Spring 2026
Dr. Lily Yen

Midterm One

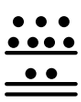
Show all your work

Name: _____
Number: _____
Signature: _____
Score: ___/30

Problem 1: Convert 157_{10} into base-8.

Score: /1

Problem 2: The following Mayan numeral has three places. Express it as a Hindu-Arabic numeral.



Score: /2

Problem 3: The following Kaktovik numeral has 4 places. Find its Hindu-Arabic numeral.

Score: /2

Problem 4: Convert $23\,789_{10}$ to a Babylonian numeral.

Score: /2

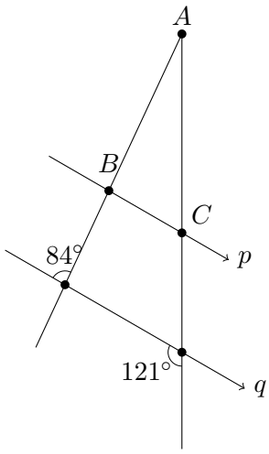
Problem 5: Fire Horse wants to plant marigolds to fill her rectangular garden. When she lines the seedlings up 7 in a row, she has 5 left over. When she lines them up 8 in a row, she finds her last row short of 3 seedlings to complete a row. Suppose she is planting at least 40 seedlings, find the smallest possible number of marigold seedlings she has.

Score: /3

/10

Problem 6: Lines p and q are parallel. Find the measures of INTERIOR angles in ΔABC:

$\angle A =$ [ ], $\angle B =$ [ ], and $\angle C =$ [ ].

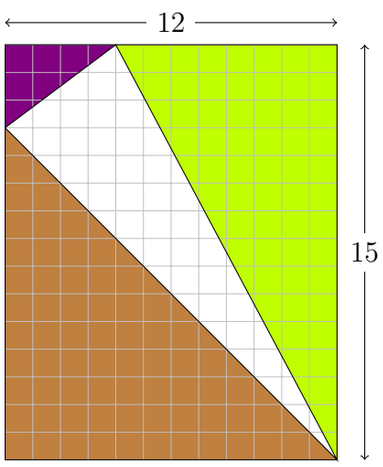


Score: /3

Problem 7: Take three different pieces of ropes: 12 cm, 16 cm, and 20 cm. Make three rectangles using each piece as a perimeter for its corresponding rectangle so that two of them make rectangles of the same area while the other makes a rectangle with a larger area.

Score: /3

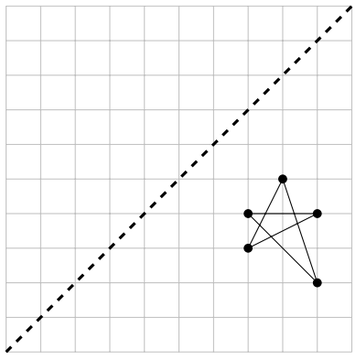
Problem 8: Below is a 12×15 grid containing a narrow triangle lying diagonally. Find the exact (no decimal approximation) perimeter and area of the narrow triangle. Show steps.



Score: /4

/10

Problem 9: Reflect the given figure along the given diagonal.



Score: /2

Problem 10: Signing up with Rogers Home Internet, Mei's family was given six free cell-phone numbers with unlimited domestic calls and texts. If their six numbers all have the same area code (778) and the same first three digits (123), how many different choices do they have for the last four digits?

Score: /2

Problem 11: Katharina organized a bag of Haribo's gummy bears according to colour. If Katharina had three times as many red gummy bears as blue ones, and the red and blue gummy bears together equalled half of the rest of the gummy bears, list all the possible total numbers of gummy bears organized by Katharina, starting with the smallest possible number.

Score: /2

Problem 12: Olove Greek Restaurant has 20 tables, some seat four while the rest seat two. When all tables are occupied to capacity and no tables are put together for a larger party, there are 70 guests. How many tables of each type are in the restaurant?

Score: /2

Problem 13: Inderpreet is sorting her Canadian bills and coins. Suppose all the bills and coins are different, what are the coins and bills to make $38.35?

Score: /2

/10