

Math 123-01
Fall 2025
Dr. Lily Yen

Midterm One

Show all your work

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

Problem 1: Convert each of the following into Hindu-Arabic numeral base-10.

a. 210321_4

b. 

c. 

Score: /6

Problem 2: Convert 2753_{10} to Mayan numerals.

Score: /2

Problem 3: We know that we have between 100 and 150 books in our STEM library. If we organize the books in groups of 9s, there are 7 left over; in groups of 7s, 2 books left over. How many books do we have?

Score: /2

/10

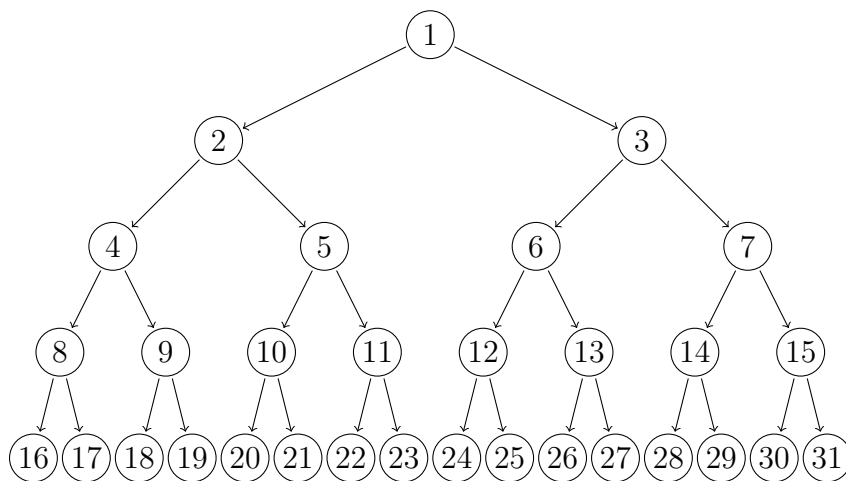
Problem 4: On a Safari Hobby Farm, Farmer Jens has 4 ostriches, 5 zebras, and 3 gazelles. Suppose Farmer Jens needs to bring one of each kind of animals to an elementary school's fun fair, how many different groups of 3 (namely, an ostrich, a zebra, and a gazelle) are there?

Score: /2

Problem 5: Sarbjit has 18 coins in her wallet which are either dimes (10-cent coins) or quarters (25-cent coins). She has a total of \$2.25 worth of coins in her wallet. How many quarters does Sarbjit have?

Score: /3

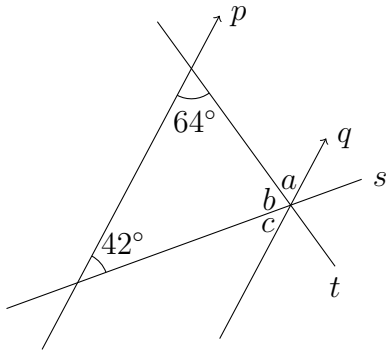
Problem 6: Shown is a binary tree organized in levels: Level 0 has 1 node; level 1 has 2 nodes (labelled 2 and 3); level 2 has 4 nodes (labelled 4, 5, 6, 7).



- How many nodes (circles) are in level 3?
- Which level of the tree contains the label 29?
- If you continue this pattern and draw the next level of the tree, what will the largest label be for the right most node?
- Which level of the tree contains the 4-digit label, 1123? Show your work.

Score: /5

Problem 7: Lines p and q are parallel. Lines s and t are transversals. Find the measures of angles a , b , and c .

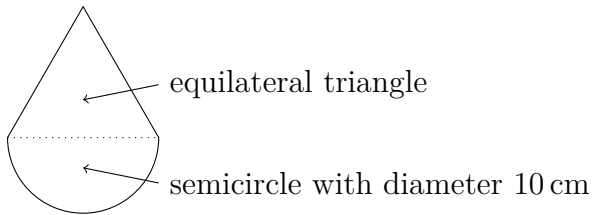


Score: /3

Problem 8: Find the measure of one interior angle of a regular octagon (8-sided).

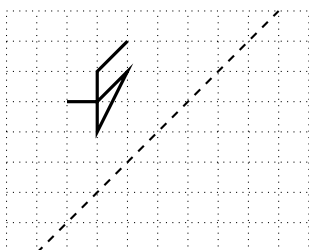
Score: /1

Problem 9: Shown is an equilateral triangle with its base equal to the diameter of a semicircle. If the diameter is 10 cm, find both the perimeter and the area of the figure.



Score: /5

Problem 10: Reflect the given figure along the dashed line.



Score: /1