

Dawson College Department of Mathematics

Instructor: M. Ishii

201-941-DW Engineering Math I

Name:

ANSWERS

Fall 2019

Time Limit: 3 hours

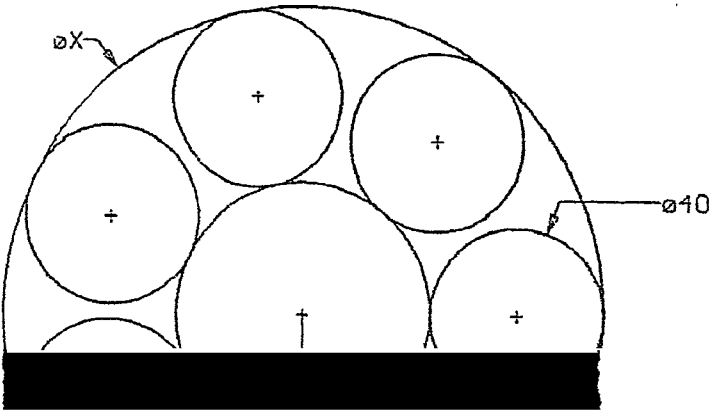
- Each question is worth 10 marks, and all lengths are in millimeters. Keep 4 decimal places.

Problem	Points	Score
---------	--------	-------

1. Solve the following systems using Gauss-Jordan Elimination:

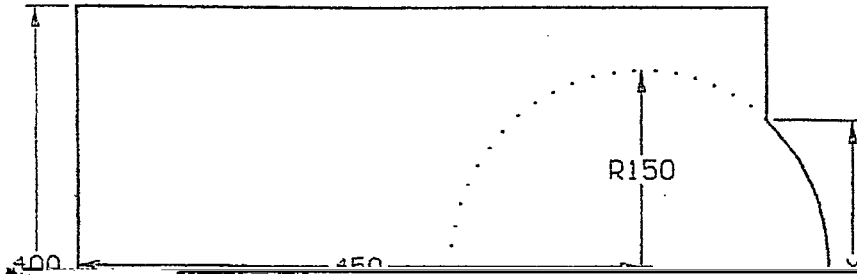
(2) (5 marks) Solve the following system:
$$\begin{cases} 3x - 4y + 4z = 7 \\ x - y - 2z = 2 \end{cases}$$

2. (10 marks) Find the diameter X and clearance Y.



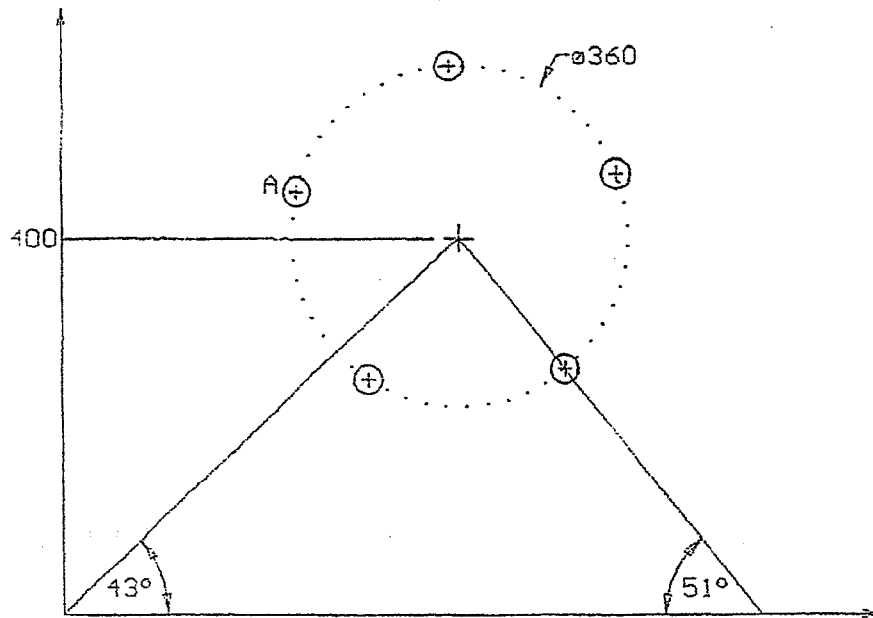
2. (10 marks) Find the length of the curve $y = \frac{1}{2}x^2$ from $x = 0$ to $x = 2$.

4. (10 marks) Find the lengths X and Y, AND find the area of the baseplate.



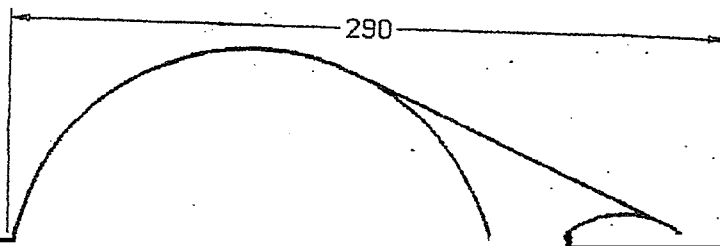
$X = 50 \text{ mm}$
 $- 223.6068 \text{ mm}$
 $- 7052$

5. (10 marks) Find the coordinates of point A:

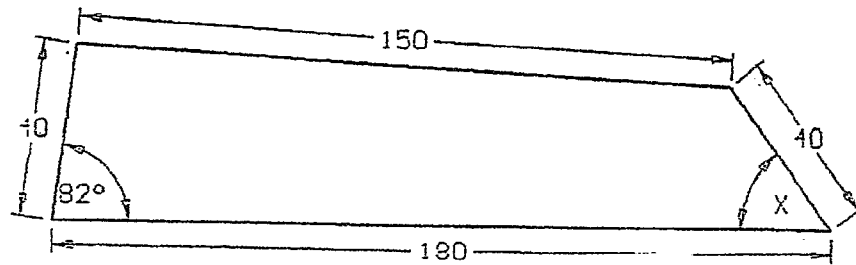


Handwritten scribbles and the number 1934 are visible below the diagram.

6. (10 marks) Find the beltlength.

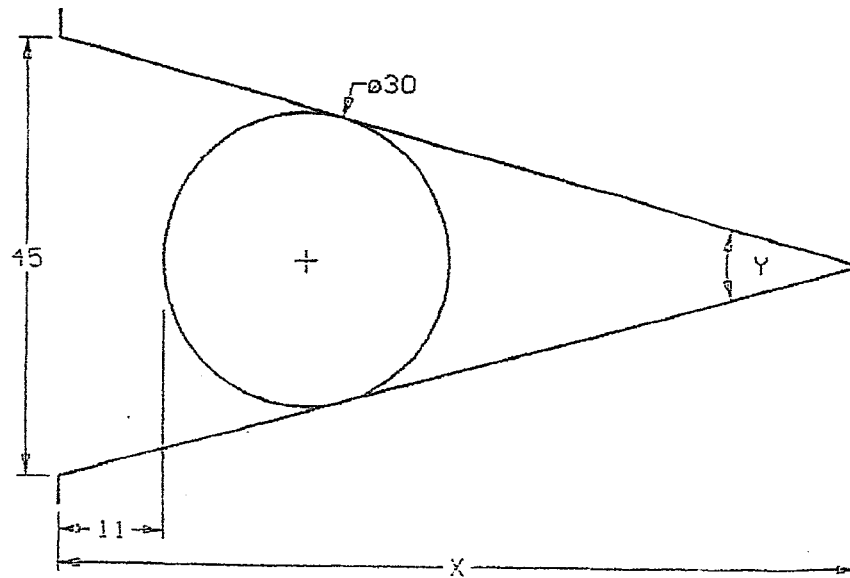


7. (10 marks) Find the angle X:



$$X = 51.9526^\circ$$

8. (10 marks) Find the values of X and Y:



$$X = 83.9274 \text{ mm}$$

$$Y = 30.0149^\circ$$

9. (a) (5 marks) Find the radius and center of the circle with equation: $x^2 + y^2 - 6x + 10y = 0$

Radius = 5
Center = (3, -5)

(b) (5 marks) Simplify, with only positive exponents: $(5z)^{-1}x^{-2}y^3$

10. Solve the following equations for x :

(a) (5 marks) $\log(x + 5) + \log(x + 2) = \log(x + 6)$

$$x = -0.7639$$

(b) (5 marks) $\frac{2x}{x-1} + \frac{x-5}{x-2} = 1$

$$x = -4$$