

# MATHEMATICS 89

**FINAL EXAM A**

**Fall 2003**

NAME: \_\_\_\_\_

STUDENT NUMBER: \_\_\_\_\_

Put a check mark by your section:

	01	MW 9:00AM	Teng
	02	MW 9:00AM	Gonzalez
	03	MW 10:50AM	Gebremicael
	04	MW 12:40PM	Gonzalez
	05	MW 2:30PM	Wang
	06	MW 4:20PM	Smblyan

	07	TR 8:00AM	Nava
	08	TR 9:50AM	Mittal
	10	TR 11:40AM	Lee
	11	TR 1:30PM	Ferguson
	12	TR 4:20PM	Hendrata

- This exam has 25 questions. Each question is worth 4 points.
- This is a closed book exam. No notes, no books allowed.
- No calculators allowed.
- Write your name at the top of each page.
- If you do not have enough room to work on a particular problem, you can use the back of the previous page or an extra sheet of paper. Make sure that the graders can find any work that you want graded. Write your name and student number on any extra paper.

Question	1	2	3	4	5	6	7	8	9	10	11	12	13
Score													

Question	14	15	16	17	18	19	20	21	22	23	24	25	TOTAL
Score													

NAME: \_\_\_\_\_

1. Mark the following as true or false:

(a)  $-4 > -2$  Answer: \_\_\_\_\_

(b)  $|- .75| \neq 1$  Answer: \_\_\_\_\_

(c)  $-4 < -4$  Answer: \_\_\_\_\_

(d)  $(-2)(-3) \geq 2 \cdot 3$  Answer: \_\_\_\_\_

2. Given sets  $R = \{1, 2, 3, 4, 5\}$  and  $T = \{2, 4, 6, 8, 10\}$ , determine whether the following statements are true or false:

(a)  $R \subset T$  Answer: \_\_\_\_\_

(b)  $\{4, 10\} \subset T$  Answer: \_\_\_\_\_

(c)  $3 \in R$  Answer: \_\_\_\_\_

(d)  $T \not\subset R$  Answer: \_\_\_\_\_

3. Find the GCF (greatest common factor) and LCM (least common multiple) of 24 and 30.

GCF= \_\_\_\_\_

LCM= \_\_\_\_\_

4. Calculate  $\frac{1}{21} + \frac{2}{7}$ . Put the answer in lowest terms.

Answer: \_\_\_\_\_

5. Calculate  $\frac{1}{15} - \frac{3}{5}$ . Put the answer in lowest terms.

Answer: \_\_\_\_\_

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6. Calculate  $-2[5 - (-3)^2]$ .

Answer: \_\_\_\_\_

7. Calculate  $\frac{3^3}{7} \div \frac{3}{7}$ . Put the answer in lowest terms.

Answer: \_\_\_\_\_

8. Simplify the expression  $3(xy - 7) - 4y(x + 5)$ .

Answer: \_\_\_\_\_

9. Evaluate the expression  $3xy - 2x^3$  when  $x = -1$  and  $y = 2$ .

Answer: \_\_\_\_\_

10. Solve  $-\frac{2}{3}(4 - y) = 6$  for  $y$ .

$y =$  \_\_\_\_\_

11. Solve  $\frac{1}{3}(b - 2) = b$  for  $b$ .

$b =$  \_\_\_\_\_

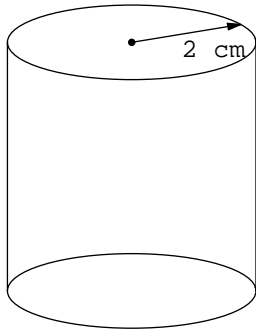
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12. The formula for the volume of a cylinder is  $V = \pi r^2 h$  where  $V$  is the volume,  $r$  is the radius of the base, and  $h$  is the height of the cylinder.

(a) Solve this formula for  $h$ .

$h =$  \_\_\_\_\_

(b) The cylinder below has volume  $12\pi \text{ cm}^3$ . What is its height?



Answer: \_\_\_\_\_

13. The sum of 3 consecutive integers is 63. What is the smallest of these integers?

Answer: \_\_\_\_\_

14. Solve the inequality  $-3z + 13 < 34$ .

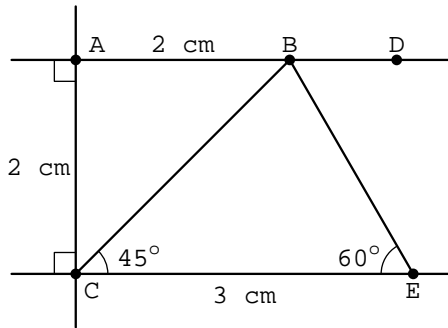
Answer: \_\_\_\_\_

15. A rectangle has perimeter 18 inches and its width is 5 inches more than its length. What is the width of the rectangle?

Answer: \_\_\_\_\_

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Questions 16-21 are about the figure below:



16. What is the measure of  $\angle CBE$ ?

Answer: \_\_\_\_\_

17. What is the measure of  $\angle ABC$ ?

Answer: \_\_\_\_\_

18. What is the measure of  $\angle DBC$ ?

Answer: \_\_\_\_\_

19. What is the area of the triangle CBE?

Answer: \_\_\_\_\_

20. Is there an isosceles triangle in the diagram? If so, what are its vertices?

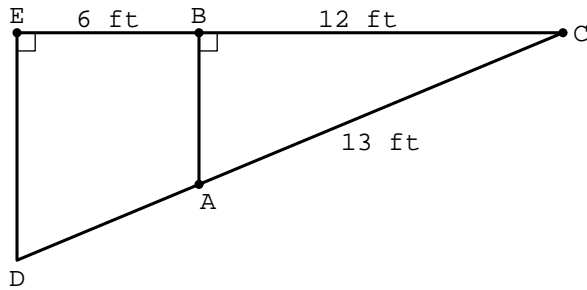
Answer: \_\_\_\_\_

21. What is the area of the trapezoid ABEC?

Answer: \_\_\_\_\_

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Questions 22–23 are about the figure below:



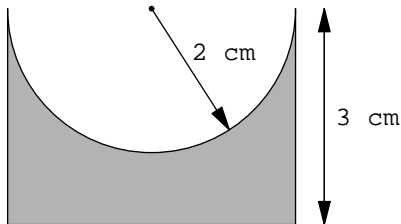
22. What is the length of  $\overline{AB}$ ?

Answer: \_\_\_\_\_

23. What is the length of  $\overline{DA}$ ?

Answer: \_\_\_\_\_

Questions 24–25 are about the shaded figure below formed by cutting a semicircle of radius 2 cm from a rectangle. In answering these questions, do not approximate  $\pi$ .



24. What is the area of the shaded figure?

Answer: \_\_\_\_\_

25. What is the perimeter of the shaded figure?

Answer: \_\_\_\_\_