

Math 111, Fall 2003

Final Exam

Name (print): _____

Directions

1. Time limit: 1 hour 50 minutes.
2. To receive credit on any problem, you must show work that explains how you obtained your answer or you must explain how you obtained your answer.
3. Write your work *in pencil* in the provided spaces. Your work must be neat, organized, and legible.

Write your answers in the provided boxes.

4. You may use a calculator, but you may not use any notes, books, or other resources.
5. If a problem does not specify that an answer be written in fraction notation, mixed number notation, or decimal notation, then write the answer in the notation that you think is most appropriate for the problem. *All numerical fractions must be expressed in lowest terms.*
6. You are expected to do your own work. You are neither to receive nor to give any help on the exam. Additionally, you are expected to report to your instructor anyone that you observe may be receiving or giving any help on the exam.

I have read the directions.

Signature: _____

Student ID number: _____

1. Evaluate the expression $\frac{(-6)^2 - 1}{-4 - 3}$.

Answer:

-
2. Let a variable represent the unknown quantity. Then write and solve an equation to answer the question.

After its first year of business, a manufacturer of smoke detectors found its market share 43 points behind the industry leader. Five years later, it trailed the leader by only 9 points. How many points of market share did the company pick up over this five-year span?

Answer:

-
3. Evaluate the algebraic expression for the given values of the variables.

$$x^2 - y^2; \quad x = 5, y = -2$$

Answer:

4. Simplify the expression: $-4(6 - 4e) + 3(e + 1)$.

Answer:

5. Solve the equation by removing parentheses.

$$2x + 3(x - 4) = 23$$

Answer:

6. Find an equation and then solve it to answer the question.

After beginning a new position with 15 established accounts, a salesman made it his objective to add 5 new accounts every month. His goal was to reach 100 accounts. At this rate, how many months would it take to reach his goal?

Answer:

7. Simplify the fraction to lowest terms, if possible: $\frac{32k^2}{8k^5}$.

Answer:

-
8. Multiply: $\left(\frac{3}{8}\right)\left(-\frac{2}{3}\right)\left(-\frac{12}{27}\right)$. Write the answer in lowest terms.

Answer:

-
9. Find the quotient: $-\frac{15}{32y} \div \frac{3}{4}$.

Answer:

-
10. Do the operation: $\frac{3}{16} + \frac{4h}{8}$.

Answer:

11. A developer donated to the county 100 of the 1,000 acres of land she owned. She divided the remaining acreage into $1\frac{1}{3}$ -acre lots. How many lots were created?

Answer:

-
12. Find the sum: $-3\frac{2}{3} + (-1\frac{4}{5})$.

Answer:

-
13. Evaluate the expression: $\left|\frac{2}{3} - \frac{9}{10}\right| \div \left(-\frac{1}{5}\right)$.

Answer:

-
14. Evaluate the expression and round the result to the nearest hundredth: $\frac{-1.2 - 3.4}{3(1.6)}$.

Answer:

15. Solve the equation: $6 + \frac{y}{5} = 1$.

Answer:

16. Solve the equation: $-2.1x - 3.1 = 5.3$.

Answer:

17. Find the coordinates of the x - and y -intercepts and one other point of the graph of the equation, then graph the equation: $3x - 5y = 15$.

Answer:

Graph (draw and label the axes):

18. Subtract the polynomials: $(7a^2 - 5a) - (5a^2 - 2a + 3)$.

Answer:

19. After the first day of registration, 84 children had been enrolled in a new day care center. That represented 70% of the available slots. What was the maximum number of children the center could enroll?

Answer:

20. Solve for the variable in the proportion: $\frac{x + 3}{12} = \frac{-7}{6}$.

Answer:

21. A perfume is to be mixed in the ratio of 3 drops of pure essence to 7 drops of alcohol. How many drops of pure essence should be mixed with 56 drops of alcohol?

Answer:

-
22. A 20-foot ladder reaches a window 16 feet above the ground. How far from the wall is the base of the ladder?

Answer:

-
23. A rectangular living room measures 30 feet by 18 feet. At \$32 per square yard, how much will it cost to carpet the room? (Assume no waste.)

Answer:

24. Joan wants to jog 10 miles on a circular track $\frac{1}{4}$ mile in diameter. How many times must she circle the track. Use $\pi \approx 22/7$ and round your answer to the nearest hundredth.

Answer:

-
25. Make up a story problem that would be solved by dividing $1\frac{1}{2} \div \frac{3}{4}$.

Answer:

End of the exam.