CCDM 103N: Pre-Algebra
Final Exam Review

Directions: The final is to be done **WITHOUT A CALCULATOR.**

All fractions should be simplified to lowest terms. When appropriate, label answers with the proper symbol or units (for example: %, ft, cm^2, etc.).

1. Add: 32 + (-14) + (-10) + 1
2. Multiply: (-2)(-3)(-11)
3. Simplify: $7 - 32 \div 2^4 + (^- 2)$
4. Simplify: $-48 \div (-4)^2 + 3$
5. Simplify: 8÷(-4) – 42 ÷ (-7)
6. Simplify: $4 - (3^2) + 7(3+9) - (-6)$
7. Add: $\frac{3}{14} + \frac{1}{3} + \frac{1}{7}$
8. Add: $\frac{5}{8} + \frac{2}{3}$
9. Add: $3\frac{2}{3} + 5\frac{3}{5}$
10. Add: $\frac{-3}{8} + \frac{11}{16}$
11. Subtract: $-\frac{5}{6} - \frac{3}{4}$
12. Subtract: $-\left(-\frac{2}{3}\right) - \frac{4}{5}$
13. Subtract: $19\frac{1}{7} - 3\frac{3}{7}$
14. Subtract: $13\frac{1}{3} - 4\frac{4}{5}$
15. Subtract: $8 - 2\frac{3}{4}$
16. Multiply: $\left(\frac{7}{12}\right)\left(-\frac{9}{14}\right)$
17. Multiply: $\left(4\frac{1}{8}\right)\left(2\frac{2}{3}\right)$
18. Divide: $-\frac{35}{45} \div \frac{10}{15}$
19. Divide: $-\frac{21}{1} \div \frac{3}{8}$
20. Divide: $\frac{4}{15} \div \frac{3}{5}$
21. Add: -4.009 + 0.73
22. Subtract: 15 – 2.63
23. Multiply: (2.56)(0.75)
24. Divide: 2.58 ÷ 0.3
25. Evaluate $3x^2 - 10x + 4$ when x = -2
26. Evaluate -4r +s when r=-3 and s=5
27. Evaluate -5x + y when x=4 and y=-4
28. Simplify: 6(x – 2) + 5x + 4
29. Simplify n + mn + n
30. Simplify 6 (-3x) -9 + 3 (-2x + 6)

31. Solve: $x + 23 = -11$

32. Solve: $5(a + 3) = 30$

33. Solve: $4(y - 1) = 2y + 6$

34. Solve: $5(2x - 3) - 1 = 8x - 6$

35. Solve: $2(x - 6) = -8 + 4(x + 2)$

36. Maria had a balance of $645 in her account. She wrote checks for $73, $29 and $106. What is her new balance?

37. Jared lost $3725 on his stock investment last year. Estimate his average loss each month.

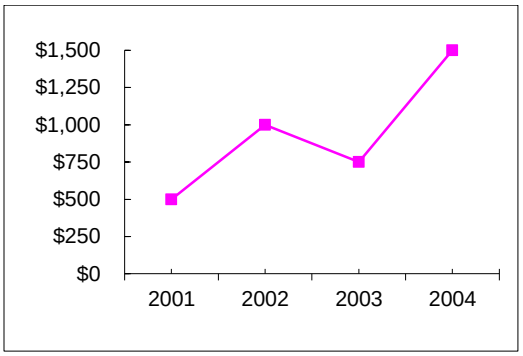
38. The math club has raised $430 to buy scientific calculators for the math lab. If the calculators cost $22 each, how many can be purchased? How much money will be left over?

39. John earned $500 before taxes. $165.20 was taken out for federal taxes, $82.63 for state taxes, an $75.81 for social security. How much was his take-home pay?

40. Use your estimation skills to select the most reasonable answer.
What is 11% of $126?

    a. $1.26
    b. $252.00
    c. $63.00
    d. $13

41. The line graph below shows the annual sales of tennis rackets at the Sports-R-Us Store for each of four years.



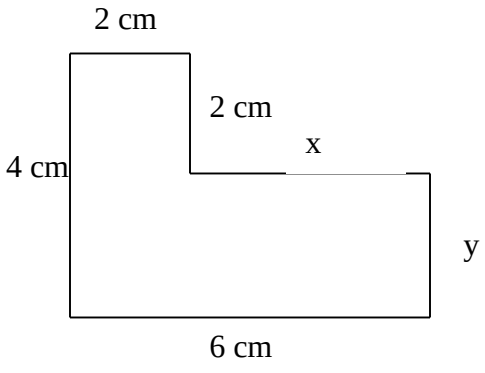
    a. In which year were the annual sales the lowest?

    b. What was the decrease in annual sales from 2002 to 2003?

42. Translate into an equation and solve. Use *x* to represent the unknown number. *The sum of seven times a number and five is negative sixteen. Find the number.*

43. A rectangle measures 9.15 cm wide and 15.13 cm long. What is the perimeter of the rectangle?

44. First find the value of x and y. Then find the perimeter and the area of the figure.



45. Andrea plans to carpet a rectangular room that measures 10 ft wide and 12 ft long. If the carpet costs $3 per square foot, what is the cost of the carpet?

46. Translate into an equation and solve. Identify what your variable represents. *A board is 36-in long. Rosa cut the board into two pieces, with one piece 14 inches longer than the other piece. Find the length of both pieces.*

47. This table lists the number of overtime hours employees worked. Use the table to answer the questions below. Round to the nearest tenth if necessary.

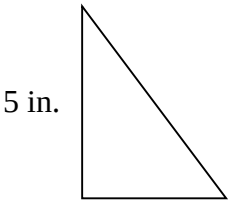
Overtime hours for March	
Ray	8
Joe	9
Tony	10
Jean	19
Laura	2
Juan	3
Debbie	9
Sam	12.5
Jenny	8.5

a. Find the mean number of hours of overtime.

b. Find the median number of hours of overtime.

c. Find the mode for the overtime hours.

48. Find the length of the hypotenuse:

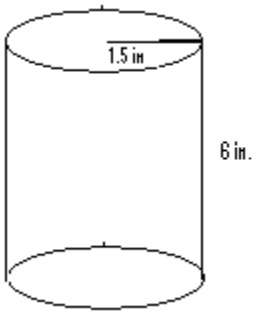


49. There is a ladder leaning against a building. The ladder is 15 meters. The building is 12 meters high. Find how far is the ladder away from the building.

50. Find the circumference of a circle with a radius of 10 feet. Use 3.14 as the approximate value for π.

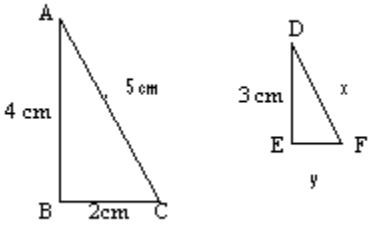
51. Find the area of a circle with a radius of 2 feet. Use 3.14 as the approximate value for π.

52. Determine the volume of the cylinder. ($V = \pi \cdot r^2 \cdot h$) Use 3.14 as the approximate value for π.



53. Agatha works 40 hours to earn $380. What is her pay rate per hour?

54. Find the missing sides of triangle DEF. Assume that triangle ABC is similar to triangle DEF.

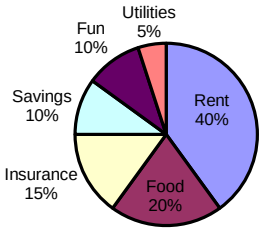


55. A computer is priced at $2,000. If the sales tax rate is 7.5%, find the total cost of the computer.

56. The discount on a television set was $60. This was a discount of 25% off the original price. What was the original price of the television set?

57. Jack asked Jill to meet him in $\frac{2}{3}$ of an hour. How many minutes does Jill have until she meets Jack?

58. The circle graph below shows Lynne's budget plan. The amount of money budgeted for each category is expressed as a percent of Lynne's total salary of $1600. Find the amount of money Lynne budgeted from her salary for food and fun.



Solutions

1. 9
2. -66
3. 3
4. 0
5. 4
6. 85
7. $\frac{29}{42}$
8. $\frac{31}{24}$ or $1\frac{7}{24}$
9. $\frac{139}{15}$ or $9\frac{4}{15}$
10. $\frac{5}{16}$
11. $-\frac{19}{12}$ or $-1\frac{7}{12}$
12. $-\frac{2}{15}$
13. $\frac{110}{7}$ or $15\frac{5}{7}$
14. $\frac{128}{15}$ or $8\frac{8}{15}$
15. $\frac{21}{4}$ or $5\frac{1}{4}$
16. $-\frac{3}{8}$
17. 11
18. $-\frac{7}{6}$ or $-1\frac{1}{6}$
19. -56
20. $\frac{4}{9}$
21. –3.279
22. 12.37
23. 1.92
24. 8.6
25. 36
26. 17
27. -24
28. 11x – 8
29. 2n + mn
30. -24x + 9
31. x = -34
32. a = 3
33. y = 5
34. x = 5
35. x = -6
36. $437
37. ≈ $400
38. 19 calculators; $12
39. $176.36
40. d
41. a. 2001
    b. $250
42. a. 7x + 5 = -16
    b. x = -3
43. 48.56 cm
44. a. P = 20 cm
    b. A = 16 cm^2
45. $360
46. a. x = length of shorter side
    b. x + x + 14 = 36
    c. 11 and 25 inches
47. a. 9 hours
    b. 9 hours
    c. 9 hours
48. 13 in.
49. 9 meters
50. 62.8 ft
51. 12.56 ft^2
52. 42.39 in^3
53. $9.50

54. x =3.75 cm; y = 1.5 cm
55. $2150
56. $240
57. 40 minutes
58. $480