To the Test – be sure to bring:

(1) your personally-prepared 8 ½ " by 11" study guide for this test
(2) your simple, non-graphing calculator
(3) your pencils
(4) your BluGold ID

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1. Add or subtract. Write the answer in lowest terms.

$$\frac{3}{5}+\frac{2}{35}-\frac{5}{14}$$

2. Evaluate.

$$2[5+2(7-4)^2]-3(2)$$

3. Solve and check the equation for the value of y:

$$54=48y+10-3y-6$$

4. Solve and check the equation for the value of m :

$$5m-(7m+9)+4=19m+5(1-4m)$$

5. Write the main equation for solving this problem and then solve.

The sum of two consecutive integers is 89. Find the integers.

EQUATION:

6. Write the main equation for solving this problem and then solve. You may find using the table helpful.

How many milliliters (mL) of a 12% alcohol solution must be added to 50 mL of a 3% alcohol solution to make a 8% alcohol solution? Express your answer as a mixed number if necessary.

Equation:

ml	%	solution

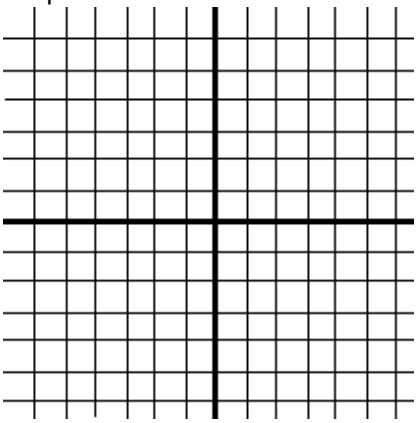
Your answer: Add _____ mL of the 12% alcohol solution.

7. Identify a second point on a line that contains the point (-2, 3) and has a slope of $m = \frac{3}{4}$.

8. Given the *standard form* of the equation of a line: $3x + y = 6$

Give the *slope-intercept form* of the line and state the y-intercept point.

Graph the line:



9. Identify the equation of the line, if possible, in *slope-intercept form*, given the following information. The line contains (1,0) and (5,-6).

10. Let $f(x) = -12x + 7$. Find $f\ 2$

11. Let $f(x) = -\frac{1}{2}x - 3$. Find x so that $f\ x\ = -1$.

12. Solve the system using the **substitution** method. Be sure to show your work.
(Points will be deducted for using the wrong method.)

$x + 3y = -12$ Solution point: $(x, y) =$ **(,)**

$3x + 4y = -6$

13. Develop the equations you need to solve this problem, list them, and solve the problem.
R.J. inherited $20,000 and puts some of it into an account earning 4% simple interest and the rest in an account earning 7% simple interest. He earns a total of $1130 in interest after a year. How much did he deposit into each account?

R.J. invested $ _____ in the 4% account and $_____ in the 7% account.

14. Simplify.

$$-7^2$$

15. Simplify. Assume all variables represent nonzero real numbers. The answer should not contain negative exponents.

$$\frac{(-4a^3)^2 b^7}{12a^{-9}b^4}$$

16. Find the product. $(4m^2)(-5m^4)$

17. Find the product. $(3n+9)^2$

18. Find the greatest common factor.

$$36wy^6 - 9wy^4 + 18wy^2$$

19. Factor completely.

$$x^2 - 3x - 54$$

20. Factor completely by grouping.

$$15c^2 - 40ck - 6ck + 16k^2$$

21. If there is more than one answer, separate them with commas.

Solve the equation: $12s^2 + 96s = 0$

22. If there is more than one answer, separate them with commas.

Solve the equation: $210w + 280 = -35w^2$

23. Write the following rational expression in its lowest terms.

$$\frac{8d-2}{28d-7}$$

24. Multiply. Be sure to simplify your answer.

$$\frac{n^2+12n+27}{n+3} \bullet \frac{9}{n+9}$$

25. Find the sum. Simplify if possible.

$$\frac{d^2+67}{(d-4)(d-9)}+\frac{5-17d}{(d-4)(d-9)}$$

26. Divide and simplify if possible.

$$\frac{\frac{x^2+8}{3}}{x+\frac{8}{x}}$$

27. Solve for the value of $5n$:

$$\frac{2n-5}{3}=\frac{11n+24}{8}$$

28. Develop the proportion needed to solve this problem. List it and then solve the problem. With a current flowing at 25 mph, a boat can travel 35 mi with the current in the same amount of time it can go 12 mi against the current. Find the speed of the boat in still water. [d = r * t]

Proportion:

The speed of the boat in still water is approximately _____mph.

29. Find the square root, if possible. Express your answer as a simplified, improper fraction, if necessary.

$$\sqrt{\frac{16}{169}}$$

30. Rewrite with a positive exponent and evaluate. Express your answer as a simplified, improper fraction, if necessary.

$$512^{-\frac{2}{3}}$$

31. Simplify completely. Assume all variables represent positive real numbers. The answer should contain only positive exponents.

$$\left(\frac{2x^{-4}}{3y^{6}}\right)^{-5}$$

32. Simplify completely

$$(\sqrt{x})^{6}\sqrt{x^{8}}$$

33. Perform the indicated operation and simplify. Assume all variables represent positive real numbers.

$$\sqrt{3a^6b^7} \bullet \sqrt{21ab^2}$$

34. Perform the operation and simplify.

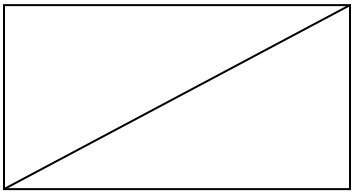
$$2\sqrt{63} - \sqrt{28} + 3\sqrt{700}$$

35. Solve for the value of b using the quadratic equation!!

$$(2b-3)^2 = 11$$

36. Develop the equation you need to solve this problem, list it, label the picture, and solve the problem.

The height of a wide-screen TV is 8 inches less than its length. The diagonal of the rectangular screen is 8 inches more than the length. Find the **height** of the screen.



Equation:

Height: _____ inches

37. Write the solution in interval notation:

$$-2 \le 3k - 8 \le 1$$

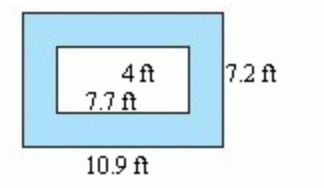
38. Add or subtract as indicated.

$$|-10+4|+3|-8-(-11)|$$

39. Find the mean, median, and mode for the following set of values.

80, 93, 87, 85, 98, 89, 87, 83

40. Find the area of the shaded portion:



41. What is the perimeter of this indoor track? What is its surface area?