107 "REVIEW FOR FINAL"

Student: Dan Mussa **Date:** 11/26/2006 **Time:** 6:19:12 PM	**Instructor:** Dan Mussa **Course:** Intermediate Alg (fall 06) **Book:** Lial: Intermediate Algebra, 8e ENHANCED	**Assignment:** 107 Review for Final (fall 06)

1. Solve and check the following equation.

$-[8z-(14z+6)]=6+(5z+9)$

The solution set is $\{\square\}$.
(Simplify your answer. Type an integer or a fraction.)

2. Solve for c.

$e=\frac{1}{6}j(c-d)$

The solution is
$c=\square$.
(Simplify your answer.)

3. Solve the following for y. Use the distributive property to factor as necessary.

$x=\frac{7y-x}{y}$

$y=\square$
(Simplify your answer.)

4. How many gallons of a 60% antifreeze solution must be mixed with 70 gallons of 10% antifreeze to get a mixture that is 50% antifreeze? Use the six-step method.

You need $\square$ gallons.

(Round to the nearest whole number.)

5. When Fritz drives to work his trip takes 35 minutes, but when he takes the train it takes 15 minutes. Find the distance Fritz travels to work if the train travels an average of 80 miles per hour faster than his driving.

Fritz travels $\square$ miles to work.
(Simplify your answer.)

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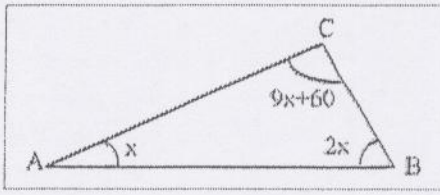
6. Find the measure of each angle in triangle.



What is the measure of angle A? ☐°

What is the measure of angle B? ☐°

What is the measure of angle C? ☐°

7. Solve the inequality, giving its solution set in both interval and graph forms.

$$\frac{10k-3}{-8} > 3$$

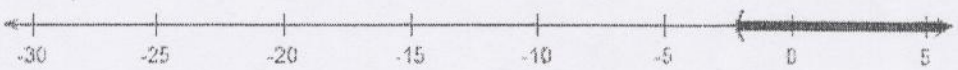
The solution set in interval form is (☐,☐).
(Simplify your answers. Type an integer or a decimal where needed.)

Choose the correct graph.

○A.

○B.

○C.



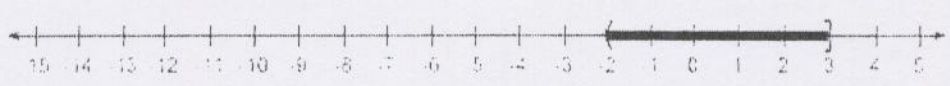
8. Solve the inequality, giving its solution set in both interval and graph forms.

$-24 \le 5x - 14 \le 1$

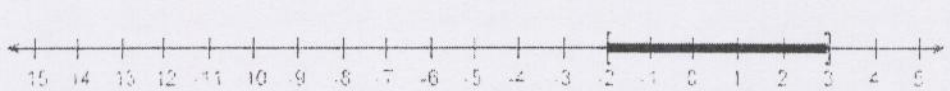
The solution set in interval form is [ ][ ].
(Simplify your answer.)

Which of the following is the correct graph?

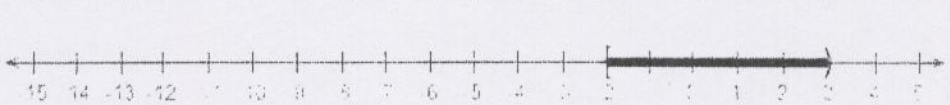
○ A.



○ B.

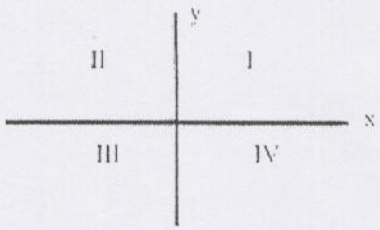


○ C.



9. Use the given information to determine the possible quadrants in which the point (x,y) could lie.

$$\frac{x}{y} < 0$$



In which quadrants might the point (x,y) lie?

[ ]

(Type I, II, III, or IV. Use a comma to separate answers.)

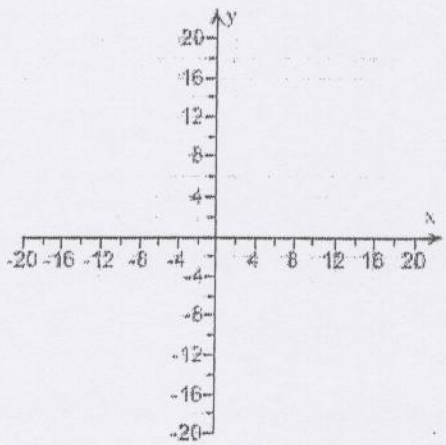
Quadrants

10. Use the intercepts to graph the equation.

$2x - 8y = 16$

Use the graphing tool to graph the line. Use the intercepts when drawing the line. If only one intercept exists, use it and another point to draw the line.

Click to enlarge graph



11. Find the slope, if it exists, of the line containing the pair of points $(7,9)$ and $(-5,9)$.

$m =$ ☐

(Simplify your answer. Type an integer or a fraction. Type N if the slope is undefined.)

12. Find the slope of the following line, and sketch the graph.

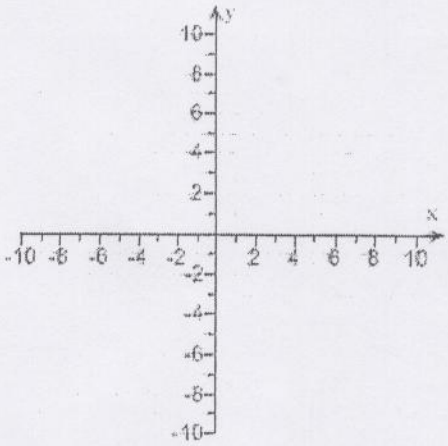
$-4x + 5y = 40$

The slope is ☐.

(Type a simplified fraction. Type N if the slope is undefined.)

Use the graphing tool on the right to graph the line.

Click to enlarge graph



13. Find an equation in standard form of the line having the given slope and containing the given point.

$m = -7, (2,5)$

Choose the correct equation of the line.

- $7x - y = 19$
- $-7x - y = 37$
- $7x + y = 19$
- $-7x + y = 37$

14. Determine if the equation describes y as a function of x. Give the domain.

$y = \sqrt{10 + 9x}$

Does the equation describe y as a function of x?

- Yes
- No

What is the domain?

- A. $(-10/9, \infty)$
- B. $(-\infty, -10/9) \cup (-10/9, \infty)$
- C. $[0, \infty)$
- D. $[-10/9, \infty)$

15. Solve the equation for y in terms of x, and replace y with function notation f(x). Then find f(10).

$x + 4y = 15$

$f(x) =$ ☐

$f(10) =$ ☐

(Type an integer or a fraction.)

16. Evaluate the expression.

$9^{-1} + 2^{-1}$

$9^{-1} + 2^{-1} =$ ☐

(Simplify your answer. Type a fraction.)

17. Simplify the expression. Assume that variables represent non − zero real numbers. Do not multiply out your answers.

$(4a^{-3})^4(a^2)^{-4}$

$(4a^{-3})^4(a^2)^{-4} = \square$

(Simplify your answer. Type in exponential form. Type positive exponents.)

18. Simplify the expression. Assume that variables represent non − zero real numbers.

$$\frac{(4k)^2 m^{-5}}{(km)^{-2}}$$

$$\frac{(4k)^2 m^{-5}}{(km)^{-2}} = \square$$

(Simplify your answer. Type in exponential form. Type positive exponents.)

19. For the following pair of functions, find $(f+g)(x)$ and $(f-g)(x)$.

$f(x) = 4x^2 + 7x - 5$ and $g(x) = -9x^2 + 5x - 16$

$(f+g)(x) = \square$

(Simplify your answer. Type in descending order.)

$(f-g)(x) = \square$

(Simplify your answer. Type in descending order.)

20. Let $F(x) = x^2 - 1$ and $G(x) = 14 - x$.

Find $(F-G)(0)$.

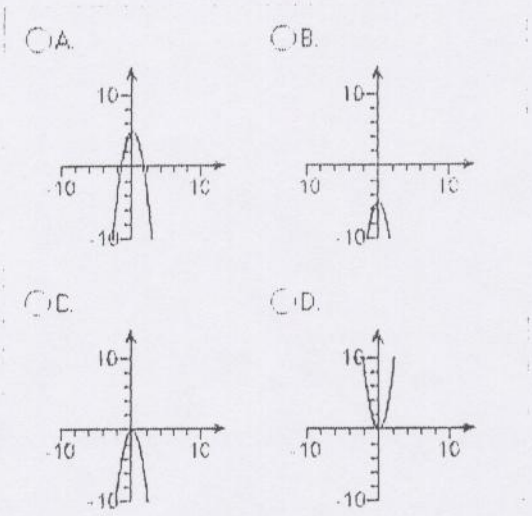
$(F-G)(0) = \square$

(Simplify your answer. Type an integer or a fraction.)

21. Graph the function by creating a table of ordered pairs. Then, give the domain and range.

$f(x) = -2x^2$

Choose the correct graph on the right.



The domain is [ ].

(Type your answer in interval notation.)

What is the range of f(x)?

A. $(-\infty, 0]$
B. $[0, \infty)$
C. $(-\infty, \infty)$

22. Find the product.

$$\left(3r - \frac{1}{2}s\right)\left(r - \frac{1}{4}s\right)$$

Choose the correct product.

A. $3r^2 + \frac{1}{4}sr + \frac{1}{8}$
B. $3r^2 + \frac{1}{8}s^2$
C. $3r^2 - \frac{5}{4}sr + \frac{1}{8}s^2$
D. $3r^2 - \frac{1}{4}sr + \frac{1}{8}$

23. Find the product.

$4y^3(y+3)(y-3)$

$4y^3(y+3)(y-3) = \square$

24. Find the square.

$\left(v - \frac{1}{5}s\right)^2$

Choose the correct square of $\left(v - \frac{1}{5}s\right)^2$.

A. $v^2 - \frac{2}{5}sv + \frac{1}{25}s^2$

B. $v^2 - \frac{1}{25}s$

C. $v^2 + \frac{1}{25}s$

D. $v^2 + \frac{2}{5}sv + \frac{1}{25}s^2$

25. Find $(h-4)^3$.

Choose the equivalent expression of $(h-4)^3$.

A. $h^3 - 64$

B. $h^3 - 12h^2 + 16h + 64$

C. $h^3 + 12h^2 + 48h + 64$

D. $h^3 - 12h^2 + 48h - 64$

26. Divide.

$$\frac{30m^2n^2 - 4mn^3 + 12m^2n}{6m^2n}$$

$$\frac{30m^2n^2 - 4mn^3 + 12m^2n}{6m^2n} = \square$$

(Simplify your answer.)

27. Divide.

$$\frac{x^2 + 7x - 44}{x + 9}$$

The answer is $\square$.

28. Divide.

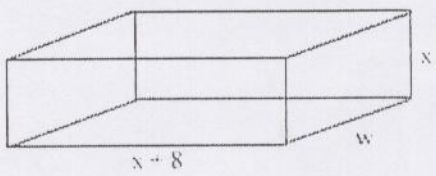
$(4x^3 - x + 10) \div (x - 3)$

$(4x^3 - x + 10) \div (x - 3) = \square$

(Use integers or fractions for any numbers in the expression.)

29. The volume of a box is $3x^3 + 26x^2 + 16x$. The height is x and the length is $x + 8$.

Find the width.



The width is $\square$.

(Simplify your answer.)

30. Find the greatest common factor for the list of terms.

$16m(r+t)^5, 12p(r+t)^6$

The greatest common factor is $\square$.

31. Factor out a factor with a negative coefficient. Then, factor out a factor with a positive coefficient.

$-r^4 + 4r^3 - 8r$

Factor out a negative factor.

$-r^4 + 4r^3 - 8r =$ ☐

(Use descending order.)

Factor out a positive factor.

$-r^4 + 4r^3 - 8r =$ ☐

(Use descending order.)

32. Factor.

$x^3 - 3x^2 + 15 - 5x$

Choose the correct factored form.

- ○A. $(x^2 + 5)(x - 3)$
- ○B. $(x^2 + 5)(3 - x)$
- ○C. $(x^2 - 5)(x + 3)$
- ○D. $(x^2 - 5)(x - 3)$

33. Factor the trinomial.

$-t^2 + t + 42$

$-t^2 + t + 42 =$ ☐

(Type N if the trinomial is not factorable.)

34. Factor.

$14x^2y^2 + 9xy - 18$

Choose the correct factorization.

- A. $(7xy - 6)(2 + 3xy)$
- B. $(xy + 3)(7xy - 6)$
- C. $(2xy + 3)(7xy - 6)$
- D. The polynomial cannot be factored.

35. Factor $-12x^2 - 68x + 112$.

Choose the appropriate factorization below.

- A. $(3x - 4)(x + 7)$
- B. $4(3x - 4)(x + 7)$
- C. $-4(3x - 4)(x + 7)$
- D. $-4(3x + 7)(x - 4)$

36. Factor the trinomial.

$a^4 + 61a^2 + 60$

$a^4 + 61a^2 + 60 =$ ☐

(Type N if the trinomial is not factorable.)

37. Factor.

$125c^2 - 180r^2$

The solution is ☐.

38. $9v^3 = 81v$

What is the solution set? {☐}

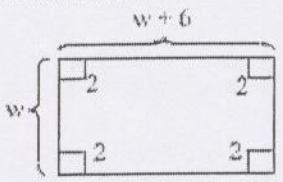
(Use commas to separate answers.)

39. The length of the top of a table is 5 m greater than the width. The area is 104 m^2. Find the dimensions of the table.

The width of the table is ☐ m.

The length of the table is ☐ m.

40. A box with no top is to be constructed from a piece of cardboard whose length measures 6 in. more than its width. The box is formed by cutting squares that measure 2 in. on each side from the four corners and then folding up the sides. If the volume of the box will be 224 $in.^3$, what are the dimensions of the piece of cardboard?



The width is ☐ in.

The length is ☐ in.

41. Perform the indicated operation. Reduce to lowest terms.

$$\frac{3}{4r-16}-\frac{4}{3r}+\frac{6}{r^2-4r}$$

$$\frac{3}{4r-16}-\frac{4}{3r}+\frac{6}{r^2-4r}=\square$$ (Use factored form in the denominator.)

42. Simplify.

$$\frac{\frac{1}{c}+\frac{1}{d}}{\frac{c^2-d^2}{cd}}$$

The simplified expression is ☐.

43. Solve the following equation for the variable x.

$$\frac{6}{x-3} + \frac{3}{x+3} = \frac{7x}{x^2-9}$$

The solution is x = ☐.

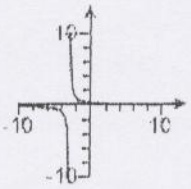
(Simplify your answer. Type an integer or a fraction. Type N if there is no solution.)

44. Graph the following function.

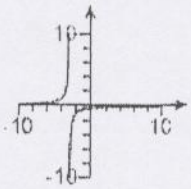
$$y = \frac{1}{x-3}$$

Choose the correct graph.

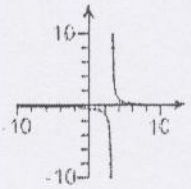
○ A.



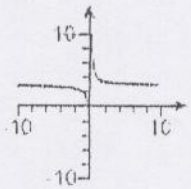
○ B.



○ C.



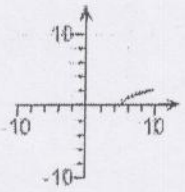
○ D.

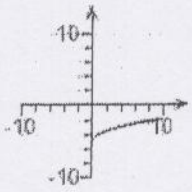


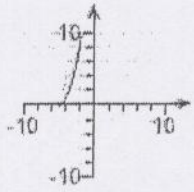
45. Graph the function and give its domain and range.

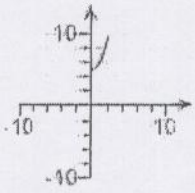
$f(x) = \sqrt{x} - 5$

Choose the correct graph.

○A. 

○B. 

○C. 

○D. 

Choose the domain.

○A. $(-\infty, 5]$ ○B. $[0, \infty)$ ○C. $[5, \infty)$ ○D. $(-\infty, \infty)$

Choose the range.

○A. $[-5, \infty)$ ○B. $(-\infty, \infty)$ ○C. $[0, \infty)$ ○D. $(-\infty, -5]$

46. Simplify the expression. Use positive exponents only. Assume that all variables represent positive real numbers.

$$\frac{m^{-1/4} n^{-3/4}}{(m^2 n)^{1/2}}$$

The simplified form is $\square$.

47. Express the radical in simplified form. Assume that all variables represent positive real numbers.

$-\sqrt{18b^{13}}$

$-\sqrt{18b^{13}} = \square$