FINAL EXAMINATION **NAME**_____

TEST FORM B **CLASS**____ **SCORE**____ **GRADE**____

Chapter 1

Perform the indicated operation.

1. $-0.18+3.7$

2. $-\frac{5}{2}-\left(-\frac{3}{5}\right)$

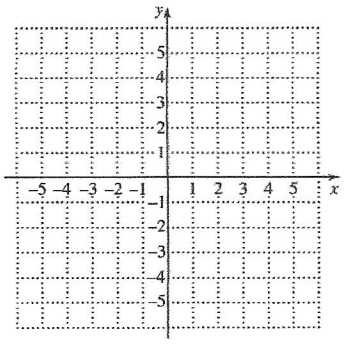
3. Combine like terms: $7a^2b-13ab^2+3ab^2-4a^2b-4$.

4. Solve: $-4x+2-5(x+3)=21$.

5. Simplify and write the answer in scientific notation. Use the correct number of significant digits. $(3.92\times10^{-5})(6.41\times10^{-2})$

Chapter 2

6. Graph: $y=-2x+1$.



7. Find the slope and the y-intercept of $-5x+2y=10$.

8. Find the slope of the line containing the points (7, –3) and (8, –14). If the slope is undefined, state so.

9. Without graphing, determine whether the pair of lines is parallel, perpendicular, or neither. $4y-5=2x$, $-2x+4y=-2$

10. Find an equation of the line containing (2, –5) and parallel to the line $4x-9y=-2$.

ANSWERS

1. _____
2. _____
3. _____
4. _____
5. _____
6. See graph.
7. _____
8. _____
9. _____
10. _____

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TEST FORM B

ANSWERS

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____
See graph.

17. _____

18. _____

19. _____
See graph.

20. _____
See graph.

Chapter 3

Solve, if possible.

11. $4x+5y=34,$ $3x-10y=53$

12. $6x+5y=17,$ $9x-7y=11$

13. Between her home mortgage and credit card bill, Dee is $68,000 in debt. Each month, Dee's credit card accumulates 1.6% interest and her mortgage 0.75% interest. After one month, her total accumulated interest is $595. Find the amount of each of these debts.

Solve. If the system's equations are dependent or if there is no solution, then state this.

14. $x+6z=-3,$ $4x+2z=10,$ $6x+4y+2z=16$

15. $5x-4z=2,$ $4x-5y=-28,$ $4y+5z=1$

Chapter 4

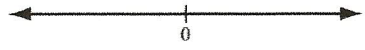
16. Graph the inequality and write the solution set in both set-builder and interval notation.
$5a-2>2a+4$

17. Stan can rent a van for either $50 per day with unlimited mileage or $35 per day with 75 free miles and an extra charge of 25¢ for each mile over 75. For what numbers of miles traveled would the unlimited mileage plan save Stan money?

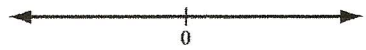
18. Find the intersection: $\{0,5,10,15,20\}\cap\{5,10,20,30\}$.

Solve and graph each solution set.

19. $2x-7\le-11$ *or* $x-3\ge1$



20. $|1-7x|=-6$



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TEST FORM B

Chapter 5

21. Given $P(x)=x^2+6x$, find and simplify $P(a-h)+P(-a)$.

22. Subtract: $(8y^2-5y-4y^3)-(6y^2+3y-7y^3)$.

23. Multiply: $(-15x^3y^2)(-3xy^2)$.

24. Factor: $45x^3-9x^5$.

25. Factor: $64m^2-81$.

26. Find the domain of the function f given by $f(x)=\dfrac{11-x}{x^2-8x+16}$.

Chapter 6

27. Simplify: $\dfrac{t-4}{t+3}\cdot\dfrac{3t+9}{4t^2-64}$.

28. Subtract and simplify if possible: $\dfrac{3x^2-5xy}{x-y}-\dfrac{xy+y^2}{y-x}$.

29. Solve: $\dfrac{t+18}{t^2-t-2}+\dfrac{1}{t-2}=\dfrac{4}{t+1}$.

30. Divide: $(5x^4+6x^2+4x+6)\div(x^2+3)$.

31. If $f(x)=6x^4-4x^3+10x-1$, use synthetic division to find $f(2)$.

32. Joe can paint a bedroom in 0.75 hr. Sara can paint the same bedroom in 1.25 hr. How long will it take them, working together, to paint the room?

Chapter 7

Simplify. Assume that variables can represent any real number.

33. $\sqrt{x^2-14x+49}$ 34. $\left(3+\sqrt{x}\right)^2$

ANSWERS

21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____

FINAL EXAMINATION **NAME**_____

TEST FORM B

ANSWERS

35. _____

36. _____

37. _____

38. _____

39. _____

40. _____

41. _____

42. _____

43. a) _____
b) See graph.

44. _____

Chapter 7 (continued)

35. Rationalize the denominator: $\dfrac{\sqrt{3}}{7+\sqrt{2}}$.

36. Subtract: $(10-3i)-(3-7i)$.

37. Divide and simplify to the form $a+bi$: $\dfrac{-4-2i}{3+i}$.

38. Simplify: i^{13}.

Chapter 8

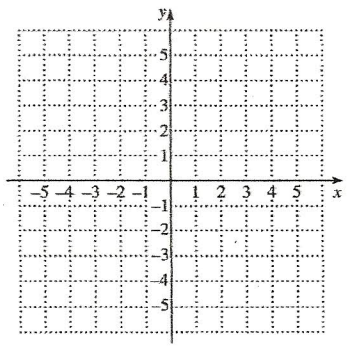
39. Solve: $x^2+x-12=0$.

40. Solve: $x^2+3x=7$. Use a calculator to approximate the solutions to three decimal places.

41. Elsworth and Priscilla can eat an entire chocolate cream pie in 48 minutes. Eating alone, it takes Priscilla 28 minutes longer than Elsworth to eat the same type of pie. How long would it take for Elsworth to eat the pie by himself?

42. Determine the type of number the solutions of $x^2+8x-9=0$ will be.

43. For the function $f(x)=2x^2-x-3$,
a) find the vertex and the axis of symmetry;
b) graph the function.



44. Solve: $x+\dfrac{5}{x}>0$.

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TEST FORM B

Chapter 9

45. Find $(f \circ g)(x)$ and $(g \circ f)(x)$ if $f(x)=3x+x^2$ and $g(x)=3-2x$.

46. Find a formula for the inverse of the function: $g(x)=3x-6$.

47. Write as an equivalent logarithmic equation: $2^{-5}=\frac{1}{32}$.

48. Express in terms of logarithms of a, b, and c: $\log\frac{a^2b^3}{c}$.

If $\log_a 4=1.386$; $\log_a 5=1.609$, and $\log_a 6=1.792$, find the following.

49. $\log_a\frac{3}{2}$

50. $\log_a 120$

51. Solve: $\log_5(x+4)=-1$.

ANSWERS

45. _____

46. _____

47. _____

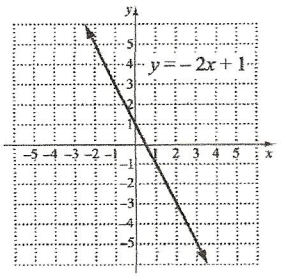
48. _____

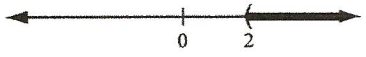
49. _____

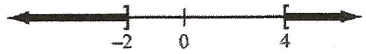
50. _____

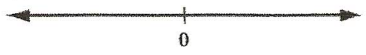
51. _____

Answers for Final Exams: FORM B

1. 3.52
2. $-\frac{19}{10}$
3. $3a^2b-10ab^2-4$
4. $-\frac{34}{9}$
5. 2.51×10^{-6}
6. 

7. Slope: $\frac{5}{2}$; y-intercept: (0, 5)
8. –11
9. Parallel
10. $y=\frac{4}{9}x-\frac{53}{9}$
11. (11, –2)
12. (2, 1)
13. Mortgage: \$58,000;
credit card: \$10,000
14. (3, 0, –1)
15. (–2, 4, –3)
16. $\{a \mid a>2\}$, or $(2,\infty)$


17. More than 135 mi
18. $\{5, 10, 20\}$
19. $(-\infty,-2]\cup[4,\infty)$


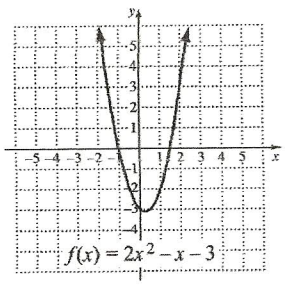
20. $\varnothing$


21. $h^2-6h-2ah+2a^2$
22. $2y^2-8y+3y^3$
23. $45x^4y^4$
24. $9x^3(5-x^2)$
25. $(8m-9)(8m+9)$
26. $\{x \mid x$ is a real number and $x\neq4\}$, or $(-\infty,4)\cup(4,\infty)$
27. $\frac{3}{4(t+4)}$
28. $3x-y$
29. $\frac{27}{2}$
30. $5x^2-9+\frac{4x+33}{x^2+3}$
31. 83
32. $\frac{15}{32}$ hr, or $28\frac{1}{8}$ min
33. $|x-7|$
34. $x+6\sqrt{x}+9$
35. $\frac{7\sqrt{3}-\sqrt{6}}{47}$
36. $7+4i$
37. $-\frac{7}{5}-\frac{1}{5}i$
38. i
39. $\{-4, 3\}$
40. $\{-4.541, 1.541\}$
41. 84 min
42. Two rational numbers

Answers for Final Exams: FORM B (Continued)

43. a) $\left(\frac{1}{4}, -\frac{25}{8}\right)$; $x = \frac{1}{4}$

b)



44. $(0, \infty)$

45. $(f \circ g)(x) = 4x^2 - 18x + 18$;
$(g \circ f)(x) = -2x^2 - 6x + 3$

46. $g^{-1}(x) = \frac{x+6}{3}$

47. $\log_2 \frac{1}{32} = -5$

48. $2\log a + 3\log b - \log c$

49. 0.406

50. 4.787

51. $-\frac{19}{5}$