

# Math 0300 Review Sheet

Name: \_\_\_\_\_

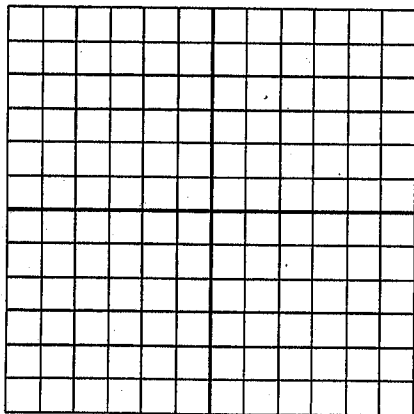
Section: \_\_\_\_\_

This review is comprehensive but should not be the only material used to study for the final exam. It should not be considered a preview of the final exam. It does not substitute for studying previous tests, quizzes, homework, class notes, text discussions, etc. There may be questions on the final exam unlike questions on this review, and vice versa. No question on this review will be exactly duplicated on the final exam. This review is longer than the final exam. You may obtain help working the review sheet in the Math Lab located in 925-N.

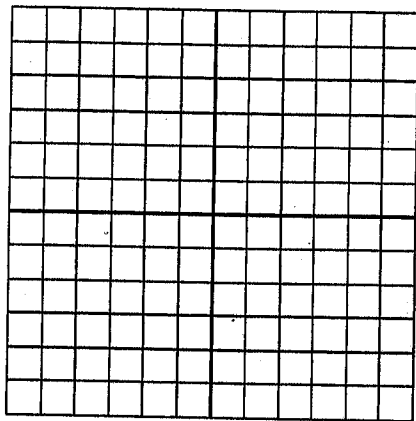
1. List all of the even natural numbers that are also prime numbers.
2. Simplify:  $9 \div 0$
3. Insert one of the symbols  $=$ ,  $<$ , or  $>$  to make the statement true:  $7 + \frac{14}{2}$  ?  $13 - 7$
4. On the number line, graph the real numbers between  $-2$  and  $4$ .
5. On the number line, graph the real numbers greater than or equal to  $-2$  and also less than  $6$ .
6. Evaluate:  $-|-7|$
7. Simplify:  $\frac{2}{7} \cdot 14$
8. Simplify:  $\frac{10}{15} \div 2$
9. Simplify:  $\frac{7}{3} - \frac{8}{15}$
10. Evaluate:  $2 + 3(13 - 9) - (12 \div 3)$
11. If  $x = 2$  and  $y = 3$ , evaluate  $-|5x - 3y|$ .
12. Evaluate:  $\frac{3^3 - 5^2 + (3 - 1)^2}{2^3 - 5}$
13. Determine the area of a circle with radius of 3 feet. Assume  $\pi = \frac{22}{7}$
14. Find the sum:  $-9 + (3 + |-5|)$
15. Find the sum:  $|-9 + 3| + (-3)$
16. Let  $x = -1$ ,  $y = -2$ , and  $z = -3$ . Find:  $\frac{2(z + 3y)}{-(x + y)}$

17. Write an algebraic expression to denote the number obtained when three times  $x$  is subtracted from the sum of  $y$  and  $z$ .
18. Write an algebraic expression to denote the quotient obtained when the sum of the three numbers  $x$ ,  $y$ , and  $z$  is divided by their product.
19. State the property of the real numbers that justifies the statement:  $x(y + z) = xy + xz$
20. State the property of the real numbers that justifies the statement:  $x \cdot 1 = x$
21. State the property of the real numbers that justifies the statement:  $x(yz) = (yz)x$
22. State the property of the real numbers that justifies the statement:  $x + (y + z) = (y + z) + x$
23. What is the additive inverse of  $-5$ ?
24. What is the additive inverse of  $\frac{3}{2}$ ?
25. Solve:  $1 = y - 5$
26. Solve:  $c - 11 = 22$
27. Solve:  $-13x = 26$
28. Solve:  $4 = \frac{x}{5}$
29. 357 is 85% of what number?
30. Solve for  $a$ :  $-6a + 1 = 13$ . What is the value of  $a - 5$ ?
31. Solve:  $\frac{3y - 5}{7} = 1$
32. Simplify:  $4(x + 1) - 3(x - 2)$
33. Solve:  $\frac{4x - 9}{3} = 3x - 8$
34. Solve:  $2(3 - 2x) = 3(2 - x) + 8$
35. Solve:  $5 + 9y - 3 = 5(2 + y) + 5$
36. Solve:  $8a + 3(2 - a) = 5(a + 2) - 4$
37. Solve:  $2(s + 2) = 2(s + 1) - 3$

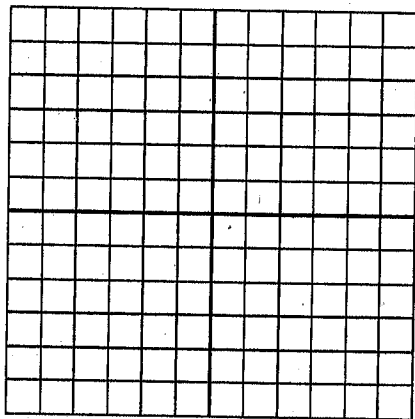
38. Solve for  $h$ :  $A = \pi r^2 h$
39. Solve for  $s$ :  $A = B - Brs$
40. 15% of what number is 48?
41. The width of a rectangle is 7 cm less than its length, and the perimeter (the distance around) is 30 cm. What is the length?
42. The 2484 union members represent 90% of a factory's workforce. How many are there in the workforce?
43. The cost of a condominium is \$58,000 less than the cost of a house. If the house and the condominium together costs \$203,000, find the cost of the condominium.
44. Solve the inequality and graph its solution:  $3x + 5 \leq 8$
45. Solve the inequality and graph its solution:  $-5 \leq 5(x + 7) < 10$
46. Graph the equation:  $2x - 3y = 6$



47. Graph the equation:  $-2x = 8$

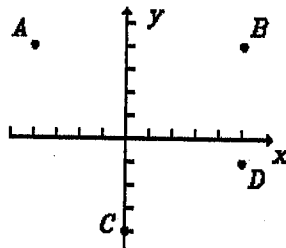


48. Graph the equation:  $4y = 8$



49. Find the  $x$ -intercept of the line given by the equation  $3x + 2y = 6$ .
50. Find the  $y$ -intercept of the line given by the equation  $3x + 2y = 6$ .

51. Find the midpoint of the line segment joining points  $B(5, 4)$  and  $C(0, -4)$ .



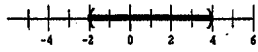
52. Evaluate:  $-3(5^3 - 3^3)$
53. Write  $x^2x^3x^4x^5$  as an expression with only one exponent.
54. Write  $(-3a^3)(2a)(-a)^2$  as an expression with only one exponent.
55. Evaluate:  $3^{-2}$
56. Write  $(z^{-2}z^5)^4$  as an expression containing only one exponent.
57. Simplify:  $(-5a)^0$ . Write answer without using parentheses or negative exponents.
58. Simplify:  $2y^{-5}$ . Write answer without using parentheses or negative exponents.
59. Simplify:  $\left(\frac{x^2}{y}\right)^{-2}$ . Write answer without using parentheses or negative exponents.
60. Simplify:  $\left(\frac{3a^2b}{ab^2}\right)^3$ . Write answer without using parentheses or negative exponents.
61. Simplify:  $\left(\frac{3a^5b^2}{a^{-3}b^{-4}}\right)^4$ . Write answer without using parentheses or negative exponents.
62. Express 37,000 in scientific notation.
63. Express 0.000045 in scientific notation.
64. Express  $9.7 \times 10^4$  in standard notation.
65. One yard is 914.4 millimeters. Express in scientific notation.
66. Classify  $5x^2 - 9x + 10$  as a *monomial*, *binomial*, or *trinomial*.
67. Indicate the degree of the polynomial  $5x - 9x^5$ .
68. Indicate the degree of the polynomial  $19x^3y^7 + 3x^5y^8 - 1$ .
69. If  $f(x) = 2x^2 + 6x + 1$ , find the value of  $f(-2)$ .

70. If  $g(x) = 2x^2 + 6x + 1$ , find the value of  $g(0)$ .
71. Simplify:  $5xy^2 + 2xy^2 + 2xy^2 - 6xy$
72. Add: 
$$\begin{array}{r} 7x^2 + 9x + 5 \\ 3x^2 - 3x - 2 \end{array}$$
73. Subtract: 
$$\begin{array}{r} 7x^2 + 9x + 5 \\ 3x^2 - 3x - 2 \end{array}$$
74. Find the product:  $x^3(2x^2 + 5x)$
75. Find the product:  $(3x - 2)(3x + 4)$
76. Find the product:  $(x + 5y)(5x - y)$
77. Find the product:  $(x - 2)^2$
78. Divide: 
$$\frac{-3y^4(2x^3y^2)^2}{-6(xy^3)^3}$$
79. Divide: 
$$\frac{18r^3t - 15s^3t}{3rst}$$
80. Divide: 
$$\frac{8x^2y^3 - 5xy^3 + 4y^7}{4xy^3}$$
81. Factor:  $7x^2 + 14y^2$
82. Factor:  $5x^2y^2z + 10xyz^2 - 15z^2$
83. Factor:  $3c^3d^4 + 9c^6d^2 - 12c^3d^2$
84. Solve:  $z^2 - 5z = 0$
85. Solve:  $r^2 + 12r = 0$

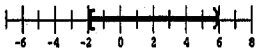
1. 2

2. undefined

3. >



4. \_\_\_\_\_



5. \_\_\_\_\_

6. -7

7. 4

8.  $\frac{1}{3}$

9.  $\frac{9}{5}$

10. 10

11. -1

12. 2

13.  $\frac{198}{7} \text{ ft}^2$

14. -1

15. 3

16. -6

17.  $y + z - 3x$

18.  $\frac{x + y + z}{xyz}$

19. Distributive prop.

20. Multiplicative identity

21. Comm. prop. of  $\times$

22. Comm. prop. of  $+$

23. 5

24.  $-\frac{3}{2}$

25. 6

26.  $c = 33$

27.  $x = -2$

28.  $x = 20$

29. 420

30.  $a = -7$

31.  $y = 4$

32.  $x + 10$

33.  $x = 3$

34.  $x = -8$

35.  $y = \frac{13}{4}$

36. identity

37. contradiction

38.  $h = \frac{A}{\pi r^2}$

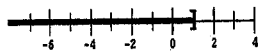
39.  $s = \frac{A - B}{-Br}$  or  $\frac{B - A}{Br}$

40. 320

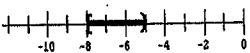
41. 11 cm

42. 2760

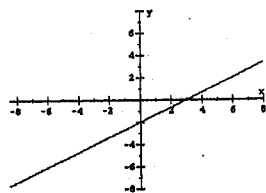
43. \$72,500



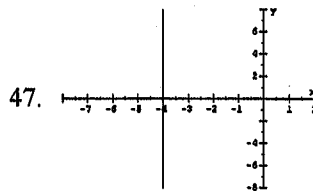
44. \_\_\_\_\_



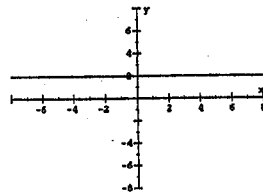
45. \_\_\_\_\_



46. \_\_\_\_\_



47. \_\_\_\_\_



48. \_\_\_\_\_

49. 2 or (2, 0)

50. 3 or (0, 3)

51.  $(\frac{5}{2}, 0)$

52. -294

53.  $x^{15}$

54.  $-\frac{6a^6}{1}$

55.  $\frac{9}{9}$

56.  $z^{12}$

57. 1

58.  $\frac{2}{y^5}$

59.  $\frac{y^2}{x^4}$

60.  $\frac{27a^3}{b^3}$

61.  $81a^{32}b^{24}$

62.  $3.7 \times 10^4$

63.  $4.5 \times 10^{-5}$

64. 97,000

65.  $9.144 \times 10^2$

66. trinomial

67. 5

68. 13

69. -3

70. 1

71.  $9xy^2 - 6xy$

72.  $10x^2 + 6x + 3$

73.  $4x^2 + 12x + 7$

74.  $2x^5 + 5x^4$

75.  $9x^2 + 6x - 8$

76.  $5x^2 + 24xy - 5y^2$

77.  $\frac{x^2 - 4x + 4}{2x^3}$

78.  $y$

79.  $\frac{6r^2}{s} - \frac{5s^2}{r}$

80.  $2x - \frac{5}{4} + \frac{y^4}{x}$

81.  $7(x^2 + 2y^2)$

82.  $5z(x^2y^2 + 2xyz - 3z)$

83.  $3c^3d^2(d^2 + 3c^3 - 4)$

84.  $z = 0, 5$

85.  $r = 0, -12$