

Name _____ Date _____ Pd _____

Semester 1 Exam Review

To earn bonus points on your exam, you must complete ALL the problems on your own paper with all work shown. You will be given three due dates for specific problems to complete by in order to earn the points on the exam.

- Given the set $\{-2, 0, \frac{1}{4}, -1.5, 112, -3, 11, \sqrt{2}\}$, list the numbers in this set that belong to the set of: (1.2)
 - Natural numbers
 - Whole numbers
 - Integers
 - Rational numbers
 - Irrational numbers
 - Real numbers
- Given the set $\{7, 2, -\frac{1}{5}, 0, \sqrt{3}, -185, 8\}$, list the numbers in this set that belong to the set of: (1.2)
 - Natural numbers
 - Whole numbers
 - Integers
 - Rational numbers
 - Irrational numbers
 - Real numbers
- Find the absolute value of each number. (1.2)
 - $|4|$
 - $|-5|$
 - $|0|$
 - $|5.6|$
- Find the absolute value of each number. (1.2)
 - $|\frac{1}{2}|$
 - $|5|$
 - $|-8|$
 - $|\frac{2}{3}|$
- Write each of the following numbers as a product of primes. (1.3)
 - 40
 - 63
- Write each number as a product of primes. (1.3)
 - 44
 - 90
- Write $\frac{2}{5}$ as an equivalent fraction with a denominator of 20. (1.3)
- Write $\frac{2}{3}$ as an equivalent fraction with a denominator of 24. (1.3)
- Simplify: $3[4 + 2(10 - 1)]$. (1.4)
- Simplify: $5[16 - 4(2 + 1)]$. (1.4)
- Decide whether 2 is a solution of $3x + 10 = 8x$. (1.4)
- Decide whether 3 is a solution of $5x - 2 = 4x$. (1.4)
- Add. (1.5)
 - $-1 + (-2)$
 - $(-2) + (-8)$
 - $-4 + 6$
 - $-3 + 10$
- Simplify each expression. (1.5)
 - $-(-10)$
 - $-(-\frac{1}{2})$
 - $-(-2x)$
 - $-|-6|$
 - $-(-5)$
 - $-(-\frac{2}{3})$
 - $-(-a)$
 - $-|-3|$

15. Subtract. (1.6)

a. $5.3 - (-4.6)$

b. $-\frac{3}{10} - \frac{5}{10}$

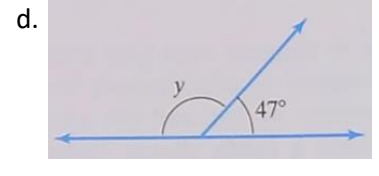
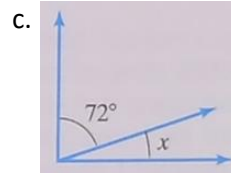
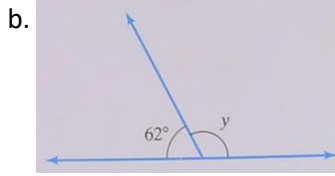
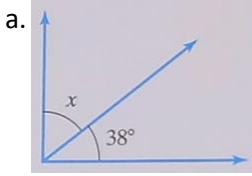
c. $-\frac{2}{3} - \left(-\frac{4}{5}\right)$

d. $-2.7 - 8.4$

e. $-\frac{4}{5} - \left(-\frac{3}{5}\right)$

f. $\frac{1}{4} - \left(-\frac{1}{2}\right)$

16. Find each unknown complementary or supplementary angle. (1.6)



17. Multiply/Find each product. (1.7)

a. $(-1.2)(0.05)$

b. $\frac{2}{3} \cdot \left(-\frac{7}{10}\right)$

c. $\left(-\frac{4}{5}\right)(-20)$

d. $(4.5)(-0.08)$

e. $-\frac{3}{4} \cdot \left(-\frac{8}{17}\right)$

18. Divide. (1.7)

a. $\frac{-24}{-4}$

b. $\frac{-36}{3}$

c. $\frac{2}{3} \div \left(-\frac{5}{4}\right)$

d. $-\frac{3}{2} \div 9$

e. $\frac{-32}{8}$

f. $\frac{-108}{-12}$

g. $\frac{-5}{7} \div \left(\frac{-9}{2}\right)$

19. Use a commutative property to complete each statement below. (1.8)

a. $x + 5 =$ _____

b. $3 \cdot x =$ _____

c. $y + 1 =$ _____

d. $y \cdot 4 =$ _____

20. Use the distributive property to write each sum as a product. (1.8)

a. $8 \cdot 2 + 8 \cdot x$

b. $7s + 7t$

c. $4 \cdot y + 4 \cdot \frac{1}{3}$

d. $0.10x + 0.10y$

21. Subtract. (2.1)

a. $4x - 2$ from $2x - 3$

b. $10x + 3$ from $-5x + 1$

22. Solve. (2.2 & 2.3)

a. $y + 0.6 = -1.0$

b. $\frac{5}{6} + x = \frac{2}{3}$

c. $7 = -5(2a - 1) - (-11a + 6)$

d. $-3x + 1 - (-4x - 6) = 10$

e. $\frac{y}{10} = 20$

f. $\frac{x}{4} = 18$

g. $4(2x - 3) + 7 = 3x + 5$

h. $6x + 5 = 4(x + 4) - 1$

23. Twice the sum of a number and 4 is the same as four times the number, decreased by 12. Find the number. (2.4)

24. A number increased by 4 is the same as 3 times the number decreased by 8. Find the number. (2.4)

25. Solve.

a. $V = lwh$ for l

b. $C = 2\pi r$ for r

26. Solve, graph the solution set, and write your answer in interval notation.

a. $x + 4 \leq -6$

b. $x - 3 > 2$

27. Insert $<$, $>$, or $=$ in the space between each pair of numbers to make each statement true. (1.2)

- a. $2 \underline{\hspace{1cm}} 3$ b. $7 \underline{\hspace{1cm}} 4$ c. $72 \underline{\hspace{1cm}} 27$
28. Write the fraction $\frac{56}{64}$ in lowest terms. (1.3)
29. Multiply $\frac{2}{15}$ and $\frac{5}{13}$. Simplify the product, if possible. (1.3)
30. Add: $\frac{10}{3} + \frac{5}{21}$. (1.3)
31. Simplify: $\frac{3+|4-3|+2^2}{6-3}$. (1.4)
32. Simplify: $16 - 3 \cdot 3 + 2^4$. (1.4)
33. Add. (1.5)
- a. $-8 + (-11)$ b. $-5 + 35$ c. $0.6 + (-1.1)$
- d. $-\frac{7}{10} + \left(-\frac{1}{10}\right)$ e. $11.4 + (-4.7)$ f. $-\frac{3}{8} + \frac{2}{5}$
34. Simplify: $|9 + (-20)| + |-10|$. (1.5)
35. Simplify each expression. (1.6)
- a. $-14 - 8 + 10 - (-6)$ b. $1.6 - (-10.3) + (-5.6)$
36. Simplify: $-9 - (3 - 8)$ (1.6)
37. If $x = -2$ and $y = -4$, evaluate each expression. (1.7)
- a. $5x - y$ b. $x^4 - y^2$ c. $\frac{3x}{2y}$
38. Is -20 a solution of $\frac{x}{-10} = 2$? (1.7)
39. Simplify each expression. (1.8)
- a. $10 + (x + 12)$ b. $-3(7x)$
40. Simplify: $(12 + x) - (4x - 7)$ (2.1)
41. Identify the numerical coefficient of each term. (2.1)
- a. $-3y$ b. $22z^4$ c. y d. $-x$ e. $\frac{x}{7}$
42. Multiply: $-5(x - 7)$ (2.1)
43. Solve $x - 7 = 10$ for x . (2.2)
44. Solve: $5(3 + z) - (8z + 9) = -4$ (2.2)
45. Solve: $\frac{5}{2}x = 15$ (2.2)
46. Solve: $\frac{x}{4} - 1 = -7$ (2.2)
47. If x is the first of three consecutive integers, express the sum of the three integers in terms of x . Simplify if possible. (2.2)
48. Solve: $\frac{x}{3} - 2 = \frac{x}{3}$. (2.3)
49. Solve: $\frac{2(a+3)}{3} = 6a + 2$. (2.3)
50. Solve: $x + 2y = 6$ for y . (2.5)
51. The 114th Congress began on January 3, 2015, and had a total of 435 Democratic and Republican representatives. There were 59 fewer Democratic representatives than Republican. Find the number of representatives from each party. (2.4)
52. Solve $5(x + 4) \geq 4(2x + 3)$. Write the solution set in interval notation. (2.8)
53. Charles Pecot can afford enough fencing to enclose a rectangular garden with a perimeter of 140 feet. If the width of his garden must be 30 feet, find the length. (2.5)

54. Solve $-3 < 4x - 1 \leq 2$. Write the solution set in interval notation. (2.8)

55. Solve: $y = mx + b$ for x . (2.5)

56. Complete the table for $y = -5x$. (3.1)

x	y
0	
-1	
	-10

57. A chemist working on his doctoral degree at Massachusetts Institute of Technology needs 12 liters of a 50% acid solution for a lab experiment. The stockroom has only 40% and 70% solutions. How much of each solution should be mixed together to form 12 liters of a 50% solution? (2.6)

58. Graph: $y = -3x + 5$. (3.2)

59. Graph: $x \geq -1$. Then write the solutions in interval notation. (2.8)

60. Find the x - and y -intercepts of $2x + 4y = -8$. (3.3)

61. Solve $-1 \leq 2x - 3 < 5$. Graph the solution set and write it in interval notation. (2.8)

62. Graph $x = 2$ on a rectangular coordinate system. (3.3)

63. Determine whether each ordered pair is a solution of the equation $x - 2y = 6$. (3.1)

- a. (6, 0) b. (0, 3) c. $(1, -\frac{5}{2})$

64. Find the slope of the line through (0, 5) and (-5, 4). (3.4)

65. Determine whether each equation is a linear equation in two variables. (3.2)

- a. $x - 1.5y = -1.6$ b. $y = -2x$
c. $x + y^2 = 9$ d. $x = 5$

66. Find the slope of the line $x = -10$. (3.4)

67. Find the slope of the line $y = -1$. (3.4)

68. Find the slope and y -intercept of the line whose equation is $2x - 5y = 10$. (3.4)

69. Find an equation of the line with y -intercept (0, -3) and slope of $\frac{1}{4}$. (3.5)

70. Write an equation of the line through (2, 3) and (0, 0). Write the equation in standard form. (3.5)

71. Insert $<$, $>$, or $=$ in the appropriate space between the paired numbers to make each statement true. (1.2)

- a. $-1 \underline{\hspace{1cm}} 0$ b. $7 \underline{\hspace{1cm}} \frac{14}{2}$ c. $-5 \underline{\hspace{1cm}} -6$

72. Evaluate. (1.4)

- a. 5^2 b. 2^5

73. Name the property or properties illustrated by each true statement. (1.8)

- a. $3 \cdot y = y \cdot 3$
b. $(x + 7) + 9 = x + (7 + 9)$
c. $(b + 0) + 3 = b + 3$
d. $0.2 \cdot (z \cdot 5) = 0.2 \cdot (5 \cdot z)$
e. $-2 \cdot \left(-\frac{1}{2}\right) = 1$
f. $-2 + 2 = 0$
g. $-6 \cdot (y \cdot 2) = (-6 \cdot 2) \cdot y$

74. Evaluate $y^2 - 3x$ for $x = 8$ and $y = 5$. (1.4)

75. Write the phrase as an algebraic expression, then simplify if possible: Subtract $4x - 2$ from $2x - 3$. (2.1)
76. Simplify: $7 - 12 + (-5) - 2 + (-2)$. (1.6)
77. Solve: $7 = -5(2a - 1) - (-11a + 6)$. (2.2)
78. Evaluate $2y^2 - x^2$ for $x = -7$ and $y = -3$. (1.7)
79. Solve: $\frac{5}{2}x = 15$. (2.2)
80. Simplify: $0.4y - 6.7 + y - 0.3 - 2.6y$. (2.21)
81. Solve: $\frac{x}{2} - 1 = \frac{2}{3}x - 3$. (2.3)
82. Solve: $7(x - 2) - 6(x + 1) = 20$. (2.2)
83. Twice the sum of a number and 4 is the same as four times the number, decreased by 12. Find the number. (2.4)
84. Solve: $5(y - 5) = 5y + 10$. (2.3)
85. Solve $y = mx + b$ for x . (2.5)
86. Five times the sum of a number and -1 is the same as 6 times the number. Find the number. (2.4)
87. Solve $-2x \leq -4$ Write the solution set in interval notation. (2.8)
88. Solve $P = a + b + c$ for b . (2.5)
89. Graph $x = -2y$ by finding and plotting intercepts. (3.3)
90. Solve $3x + 7 \geq x - 9$. Write the solution set in interval notation. (2.8)
91. Find the slope of the line through $(-1, 5)$ and $(2, -3)$. (3.4)
92. Complete the table of values for $x - 3y = 3$. (3.1)
- | | | | |
|---|----|---|---|
| x | | 3 | |
| y | -1 | | 2 |
93. Find the slope and y-intercept of the line whose equation is $y = \frac{3}{4}x + 6$. (3.4)
94. Find the slope of a line parallel to the line passing through $(-1, 3)$ and $(2, -8)$. (3.4)
95. Find the slope and the y-intercept of the line whose equation is $3x - 4y = 4$. (3.4)
96. Find the slope and y-intercept of the line whose equation is $y = 7x$. (3.4)
97. Find an equation of the line passing through $(-1, 5)$ with slope of -2. Write the equation in slope-intercept form, $y = mx + b$, and in standard form, $Ax + By = C$. (3.5)
98. Determine whether the lines are parallel, perpendicular, or neither. $y = 4x - 5$ and $-4x + y = 7$ (3.4)
99. Find an equation of the vertical line through $(-1, 5)$. (3.5)
100. Write an equation of the line with slope -5, through $(-2, 3)$. (3.5)
101. Find the domain and the range of the relation $\{(0, 2), (3, 3), (-1, 0), (3, -2)\}$. (3.6)
102. If $f(x) = 5x^2 - 6$, find $f(0)$ and $f(-2)$. (3.6)
103. Determine whether each relation is also a function. (3.6)
- $\{(-1, 1), (2, 3), (7, 3), (8, 6)\}$
 - $\{(0, -2), (1, 5), (0, 3), (7, 7)\}$

