

FINAL EXAM, PART II
ALGEBRA 1 – UNIT 1

For each answer below, please circle the letter of the answer that you believe is correct. If I cannot tell which letter you have circled, I cannot give you credit, so be careful when you circle. There are 50 questions total, so be sure to answer 50 questions. Good luck!

Part I: Simplify, then choose the correct answer.

- | | | |
|------------------|--------------|---------------------------|
| 1. $8 - 3 - 6 =$ | 2. $(10/2)5$ | 3. $(7 \frac{1}{2})2 - 1$ |
| a. 17 | a. 100 | a. 14 |
| b. -1 | b. 20 | b. 15 |
| c. 11 | c. 25 | c. $7 \frac{1}{2}$ |
| d. 9 | d. 30 | d. $10 \frac{1}{2}$ |

Part II: For each of the items below, choose the answer that describes each of the following sets.

- | | |
|---|------------------------------|
| 4. {1,3,5} | 5. {A,E,I,O,U} |
| a. all the numbers above 0 | a. consonants |
| b. all the odd numbers | b. vowels |
| c. all of the positive odd numbers less than 6 | c. letters before F |
| d. 9 | d. letters in the word pizza |

Part III: Select the answer that best specifies the elements in the set described by each of the following the rules.

- | | |
|--------------------------------------|--|
| 6. All even numbers between 3 and 13 | 7. All the counting numbers less than 10 |
| a. {1,2,3,4,5} | a. {6,3,8,4,9,1,7,2,5} |
| b. {2,4,6,8,10,12} | b. {1,2,3,4,5,6,7,8,9,11} |
| c. {4,6,8,10,12} | c. {6,9,2,10,3,7,8,1,5,4} |
| d. {4,6,8,10,11,12} | d. {1,3,5,7,9} |

Part IV: Choose the answer that best describes the size or number of elements in each of the following sets.

- | | |
|--------------|---------------------------------|
| 8. {1,2,3,5} | 9. Grains of sand on the beach |
| a. 11 | a. 1,000,000,000,000 |
| b. 5 | b. infinite |
| c. 4 | c. 0 |
| d. 3 | d. finite but really big |

10. The counting numbers

- a. 1
- b. 1,000,000,000,000,000
- c. infinite**
- d. 0

11. The odd numbers

- a. $\frac{1}{2}$
- b. 1,000,000,000,000,000/2
- c. infinite**
- d. 0

Part V: Solve each of the following given that $a = 1$, $b = 2$, $c = 3$. Then select the correct answer.

12. $a * b * c =$

- a. 6**
- b. 5
- c. 0
- d. 4

14. $(a * c) + b$

- a. 6
- b. 5**
- c. 9
- d. 4

13. $(a + b) * c$

- a. 6
- b. 5
- c. 9**
- d. 4

Part VI: Simplify, then select the correct answer for each of the following.

15. $(4 + c) = 4 - c + 2 =$

- a. $c = 2$
- b. $c = 1$**
- c. $c = 0$
- d. $c = -1$

18. $3x^2 + 6x + 9 - 2x^2 + 3x$

- a. $x^2 + 9x + 9$**
- b. $5x^2 + 9x + 9$
- c. $3x^2$
- d. 0

21. $3x + 5x + (-4x) - 5x$

- a. $-65x^2$
- b. $-x$**
- c. x^2
- d. $18x$

16. $5 * u + 15 = 4 * 5 * u$

- a. $u = 2$
- b. $u = 1$**
- c. $u = 0$
- d. $u = -1$

19. $5 + (-2)$

- a. 3**
- b. 4
- c. 5
- d. 6

17. $a + 9 = -3$

- a. $a = 6$
- b. $a = -6$
- c. $a = 12$
- d. $a = -12$**

20. $(x + 3) + (-3)$

- a. $x - 6$
- b. $x - 3$
- c. x**
- d. $3x - 3$

Part VII: Add the following polynomials. Then select the correct answer.



$$22. \frac{2x^2 + 3x}{3x^2 + 6x + 9}$$

- a. $6x^2 + 18x + 9$
- b. $5x^4 + 9x^2 + 9$
- c. $5x^2 + 9x + 9$
- d. $5x^2 + 9x$

$$23. \frac{6x + 9}{2x^2 + 3x + 3}$$

- a. $2x^2 + 9x + 12$
- b. $8x^2 + 12x + 3$
- c. $8x^3 + 12x + 3$
- d. $9x + 12$

$$24. \frac{2x^2 + x + 9}{3x^2 + 3x + 3}$$

- a. $4x^4 + 4x^2 + 12$
- b. $5x^2 + 4x + 12$
- c. $6x^2 + 3x + 27$
- d. $-x^2 + -2x + 6$

$$24. \frac{2a^2 + 3a + 3}{2a^2 + 2ab - 3b^2}$$

- a. $4a^2 + 2ab + 3ab^2 + 3$
- b. $4a^2 + 2ab + 3a - 3b^2 + 3$
- c. $4a^2 + 2ab + 3a - 6b^2$
- d. $4a^2 + 2ab^2 + 3a + 3$

Part VIII: Find the value of x. Then, select the correct answer.

$$26. \frac{1}{x} = -3$$

- a. $x = 4$
- b. $x = -1/3$
- c. $x = 3$
- d. $x = 2$

$$27. \frac{1}{x} = 1/2$$

- a. $x = 2$
- b. $x = 1$
- c. $x = 4$
- d. $x = -2$

$$28. \frac{1}{x} = -1$$

- a. $x = 1/2$
- b. $x = 1$
- c. $x = -2$
- d. $x = -1$

Part IX: For each of the following, determine the average of the numbers given. Then, select the correct answer.



29. $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

- a. **5.5**
- b. 5
- c. 10
- d. 6

30. $\{-8, 12, 7, 1\}$

- a. 7
- b. 0
- c. **3**
- d. -1

Part X: Finish the following statements. Then choose the correct answer.

31. If $a < b$ and $b < c$ then

- a. $a = 12$
- b. $c = 2$
- c. **$a < c$**
- d. $a = c$

33. If $a = 1$ and $b = a$ then

- a. $b = 2$
- b. $a > b$
- c. **$b = 1$**
- d. $b = c$

32. If $a = b$ and $b = c$ then

- a. $a > b$
- b. $a > c$
- c. **$a = c$**
- d. $a < c$

34. If $a < b$ and $b > c$

- a. $a = 12$
- b. $a < c$
- c. $a + b = c$
- d. **None of these is right**

Part XI: Simplify each of the following. Then choose the correct answer.

35. $2P < 10$

- a. **$P < 5$**
- b. $P = \frac{1}{2}$
- c. $P = 5$
- d. $P < 20$

37. $7t > 4t + 3$

- a. $t > 28$
- b. $t > 4$
- c. $t > 7$
- d. **$t > 1$**

39. $12 + r > -5r + 2 + r$

- a. **$r > -2$**
- b. $r > -\frac{1}{2}$
- c. $r < -2$
- d. $r < 2$

36. $-2 > m - 9$

- a. $2 > m$
- b. **$7 > m$**
- c. $-7 > m$
- d. $-2/9 > m$

38. $(x - 3)/5 > 4$

- a. $x > 2$
- b. **$x > 23$**
- c. $x < 23$
- d. $x > 5/7$

40. $2 + c = 4 - c$

- a. $c = -1$
- b. $c = -2$
- c. $c = 2$
- d. **$c = 1$**

Part XII: Finish the following statements. Then choose the correct answer.

41. If $x + y = 12$ and $y = 4$ then $x =$

- a. -6
- b. 8**
- c. 3
- d. -8

44. If $y + 1 > x + 2$ and $x > 3$ then

- a. $y = 4$
- b. $y < 4$
- c. $y > 6$
- d. $y > 4$**

42. If $y = 3x$ and $x = 2$ then $y =$

- a. 5
- b. -1
- c. 6**
- d. 1

45. If $y = 1 + 2x$ and $x = 2$ then $y =$

- a. 4
- b. 6
- c. 5**
- d. 3

43. If $y = 3x$ and $x > 2$ then

- a. $y > 6$**
- b. $y < 6$
- c. $y = 6$
- d. $y > 5$

Part XIII: Write the following in the form $ax + by = c$. Then choose the correct answer.

46. $2x - 4 = 3y$

- a. $2x + 3y = 4$
- b. $2x - 3y = 4$**
- c. $2x + 3y = -4$

49. $y = 3x + 2$

- a. $3x + y = -2$
- b. $y - 3x = -2$
- c. $-3x + y = 2$**

47. $5x - 2y = y + 3$

- a. $5x - 3y = 3$**
- b. $5x - 2y = 3$
- c. $5x - y = 3$

50. $y = 1$

- a. $(x) + y = 1$
- b. $y = 1$**
- c. $-x + y = 1$

48. $y + y + x + x + 1 + 1 = 0$

- a. $x + y = 2$
- b. $2x + 2y = -2$**
- c. $2x + 2y = 2$