

# STUDY GUIDE for STUDENTS ALGEBRA I PRE-COURSE SKILLS

Answer the following questions about concepts that you should know at mastery level before entering Algebra I. Calculators should NOT be used to solve these problems.

For #1 – 9, simplify each of the following:

ANSWERS:

1.  $-5 + (-1)$

\_\_\_\_\_

2.  $9 - (-3)$

\_\_\_\_\_

3.  $-6(-3)$

\_\_\_\_\_

4.  $35 \div (-7)$

\_\_\_\_\_

5.  $-\frac{2}{5} - \frac{3}{10}$

\_\_\_\_\_

6.  $-3.5 \div 1.25$

\_\_\_\_\_

7.  $5 - 3 + (-1) - (-8)$

\_\_\_\_\_

8.  $(-2)(-4)(-1)(-6)$

\_\_\_\_\_

9.  $4 - 7(-2+4)^2$

\_\_\_\_\_

For #10 – 12, identify the sets of numbers to which each of the following belong. Use

**R** – Real Numbers

**I** - Integers

**Q** – Rational Numbers

**W** – Whole Numbers

**Ir** – Irrational Numbers

**N** – Natural Numbers

10.  $6.39\overline{2}$

\_\_\_\_\_

11.  $2\pi$

\_\_\_\_\_

12.  $\sqrt{81}$

\_\_\_\_\_

13. Name the opposite of  $-12$

\_\_\_\_\_

14. Find  $|7-9|$

\_\_\_\_\_

15. List these numbers in order from least to greatest:

\_\_\_\_\_

$-0.82$ ,  $-\frac{11}{4}$ ,  $-\sqrt{17}$ ,  $-2.\overline{6}$ ,  $-\frac{1}{3}$

**For #16 – 19, identify the property of real numbers illustrated by each of the following:**

16.  $3(7 + 2) = (3 \cdot 7) + (3 \cdot 2)$  \_\_\_\_\_

17.  $\frac{1}{4} \cdot 4 = 1$  \_\_\_\_\_

18.  $7 + (2 + y) = (7 + 2) + y$  \_\_\_\_\_

19.  $4 \cdot m = m \cdot 4$  \_\_\_\_\_

20. Evaluate  $6k$  for  $k = -8$  \_\_\_\_\_

21. Evaluate  $4x - 5$  for  $x = -3$  \_\_\_\_\_

22. Evaluate  $-2(n - 3m)$  for  $n = -2$  and  $m = 4$  \_\_\_\_\_

23. Evaluate  $6x^2 - 7x + 6$  for  $x = -2$  \_\_\_\_\_

**For # 24 – 27, simplify and/or combine like terms**

24.  $7n + 3n - 5n - n$  \_\_\_\_\_

25.  $5x - 2y + 2x - y$  \_\_\_\_\_

26.  $4(5x - 7)$  \_\_\_\_\_

27.  $3m - 7n + 4(m - 2)$  \_\_\_\_\_

**For # 28 - 34, solve each of the following equations.**

28.  $5x = -15$  \_\_\_\_\_

29.  $y - 6 = -3$  \_\_\_\_\_

30.  $\frac{m}{4} = -7$  \_\_\_\_\_

31.  $3y - 8 = 13$  \_\_\_\_\_

32.  $-6x + 7 = -5$  \_\_\_\_\_

33.  $\frac{3}{4}x + 3 = -6$  \_\_\_\_\_

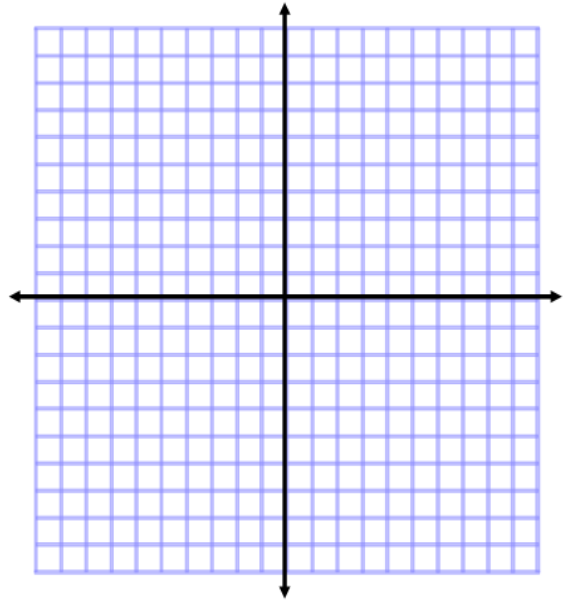
34.  $6 - 4n = -2$  \_\_\_\_\_

On the coordinate axis below,

- 35. Label the axes
- 36. Label the quadrants

**Graph and label the following points:**

- 37. A(2, -3)
- 38. B(-5, -2)
- 39. C(-3, 2)
- 40. D(0, -3)



- 41. Find the GCF of 12 and 30 \_\_\_\_\_
- 42. Find the GCF of  $25x^3y$  and  $15x^2y^3$  \_\_\_\_\_
- 43. Find the LCM of 45 and 30 \_\_\_\_\_
- 44. Find the LCM of  $12x^3y$  and  $8x^2y^4$  \_\_\_\_\_
- 45. Write 8,217,000,000 in scientific notation \_\_\_\_\_
- 46. Write 0.0000952 in scientific notation \_\_\_\_\_
- 47. Write  $4.28 \times 10^7$  in standard form \_\_\_\_\_
- 48. Write  $1.6 \times 10^{-5}$  in standard form \_\_\_\_\_
- 49. Is  $x = 3$  a solution of  $7x - 3 = 5x - 2$ ? Why or why not? \_\_\_\_\_
- 50. Is (2, 3) a solution of  $5x - 2y = 4$ ? Why or why not? \_\_\_\_\_

# STUDY GUIDE for STUDENTS ALGEBRA I PRE-COURSE SKILLS ANSWERS

1.  $-6$
2.  $+12$
3.  $+18$
4.  $-5$
5.  $-\frac{7}{10}$
6.  $-2.8$
7.  $+9$
8.  $+48$
9.  $-24$
10. Q, R
11. I, R
12. N, W, I, Q, R
13.  $+12$
14.  $+2$
15.  $-\sqrt{17}$ ,  $-\frac{11}{4}$ ,  $-\bar{2.6}$ ,  
 $-0.82$ ,  $-\frac{1}{3}$
16. Distributive Property
17. Inverse Property of Mult.
18. Associative Property of Add.

19. Commutative Property of Mult.
20.  $-48$
21.  $-17$
22.  $+28$
23.  $+44$
24.  $4n$
25.  $7x - 3y$
26.  $20x - 28$
27.  $7m - 7n - 8$
28.  $x = -3$
29.  $y = 3$
30.  $m = -28$
31.  $y = 7$
32.  $x = 2$
33.  $x = -12$
34.  $n = 2$
41.  $6$
42.  $5x^2y$
43.  $90$
44.  $24x^3y^4$
45.  $8.217 \times 10^9$

46.  $9.52 \times 10^{-5}$

47.  $42,800,000$

48.  $0.000016$

49. no  
 $7(3) - 3 \neq 5(3) - 2$   
 $21 - 3 \neq 15 - 2$   
 $18 \neq 13$

50. yes  
 $5(2) - 2(3) = 4$   
 $10 - 6 = 4$   
 $4 = 4$

#35-40

