Arts High School

Summer Entrance Packet

For Incoming Algebra I Students

Name: _____

Directions: **Complete the following problems to the best of your ability. Show your work in the space provided next to each question, in order to earn full credit. This will count as your first classwork grade for the upcoming school year. It is due on the first day of school. Start the school year off right!**

Answer the multiple choice question ↓	Show **ALL** of your work in the space below↓

Skill 1: Decimal Operations

1. Find 2.044 + 0.08 **A.** 2.52 **B.** 2.124 **C.** 2.844 **D.** 2.024	
2. Find 0.5 – 0.19 **A.** 0.41 **B.** 0.14 **C.** 0.31 **D.** 0.481	
3. What is the product of 1.38 and 2.5? **A.** 3.45 **B.** 3.35 **C.** 2.29 **D.** 3.30	
4. Six pounds of cashews cost $43.14. How much does one pound of cashews cost? **A.** $7.19 **B.** $7.24 **C.** $5.69 **D.** $7.68	

Skill 2: Fraction Operations

5. Find $\frac{3}{8}+\frac{5}{6}$ **A.** $1\frac{7}{8}$ **B.** $1\frac{1}{3}$ **C.** $1\frac{5}{24}$	

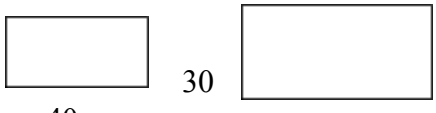
D. $1\frac{5}{12}$	
6. Find $5\frac{3}{4} - 2\frac{3}{8}$ **A.** $3\frac{3}{4}$ **B.** $2\frac{5}{8}$ **C.** $3\frac{1}{2}$ **D.** $3\frac{3}{8}$	
7. What is the product of $\frac{3}{4}$ and $3\frac{1}{5}$? **A.** $2\frac{1}{5}$ **B.** $3\frac{3}{20}$ **C.** $2\frac{1}{4}$ **D.** $2\frac{2}{5}$	
8. Find $\frac{3}{10} \div \frac{4}{5}$ **A.** $\frac{3}{8}$ **B.** $\frac{6}{25}$ **C.** $\frac{2}{5}$ **D.** $\frac{1}{2}$	

Skill 3: Percents

9. Convert $\frac{1}{6}$ to a percent. **A.** 1.7% **B.** 6% **C.** 16.7% **D.** 60%	
10. Which group does *not* consist of equivalent numbers?	

A. $\frac{8}{20}, 0.4, 40\%$ **B.** $\frac{35}{10}, 3.5, 350\%$ **C.** $\frac{6}{12}, 0.5, 50\%$ **D.** $\frac{5}{8}, 0.7, 70\%$	
11. Suppose the sale tax rate is 6%. How much sales tax would be charged for an item priced at $60.00 **A.** $10.00 **B.** $3.60 **C.** $1.00 **D.** $0.36	
12. 60 is 30% of what number? **A.** 200 **B.** 18 **C.** 180 **D.** 20	

Skill 4: Proportional Reasoning

13. Which ratio is *not* equivalent to the others? **A.** 3 : 5 **B.** 6 : 10 **C.** 9 : 15 **D.** 4 : 7	
14. What is the missing term in the proportion $\frac{y}{16} = \frac{18}{24}$? **A.** 12 **B.** 40 **C.** 9 **D.** 10	
15. Below are two similar figures. Find x. **A.** 15 **B.** 40 **C.** 50 **D.** 60 	
16. A map has a scale of 1cm : 100km. How many centimeters on the map represent 250 km? **A.** 0.4 cm **B.** 25 cm **C.** 2.5 cm	

D. 4 cm	

Skill 5: Exponent Awareness

17. Simplify the expression $(6-3)^2$ **A.** 3 **B.** 0 **C.** 9 **D.** -3	
18. Write the expression $0.2 \cdot 0.2 \cdot 0.2 \cdot 0.2 \cdot 0.2$ **A.** $5^{0.2}$ **B.** 0.2^4 **C.** 0.2^5 **D.** $10^{0.2}$	
19. Simplify the expression $(-4)^3$ **A.** -16 **B.** 64 **C.** -64 **D.** -12	
20. Which expression represents the volume of a cube whose edge length is 60 units? **A.** 60^3 **B.** 3(60) **C.** 3^{60} **D.** 6^{10}	

Skill 6: Order of Operations

21. Evaluate the expression: $6 \div 3 + 2 \times 7$ **A.** 16 **B.** 28 **C.** 35 **D.** 11	
22. Evaluate the expression: $6(5-3)^2 + 3$ **A.** 67 **B.** 99 **C.** 24 **D.** 27	
23. What is the value of the expression $3 + 2x^3$ when x = 2? **A.** 67 **B.** 19 **C.** 10651 **D. 75**	
24. What is the value of the expression $27 - \frac{24}{b}$	

when b = 8? **A.** 21 **B.** 3/8 **C.** 24 **D.** -4	

Skill 7: Integer Awareness

25. Choose the true statement **A.** -3 < 3 **B.** -5 > 0 **C.** -7 > -6 **D.** 1 < -2	
26. The temperature on Mars ranges from -68°F during the day to -176°F at night. Which temperature is *not* likely to be measured on Mars? **A.** -100°F **B.** 0°F **C.** -76°F **D.** -150°F	
27. Order the integers 0, -12, 18, 2, 15, and -1 from least to greatest. **A.** 0, -1, 2, -12, 15, 18 **B.** -1, -12, 0, 2, 15, 18 **C.** -12, -1, 0, 2, 15, 18 **D.** 18, 15, 2, 0, -1, -12	
28. Which expression is *not* equivalent to the opposite of +9? **A.** -9 **B.** - |9| **C.** - |-9| **D.** |-9|	

Skill 8: Integer Operations

29. Find the value of -7 + -6. **A.** 13 **B.** -13 **C.** -1 **D.** 1	
30. Find the value of 9 – 15. **A.** 6	

B. -6 **C.** 24 **D.** -24	
31. Find the value of -8 + 17. **A.** 25 **B.** -25 **C.** 9 **D.** -9	
32. Find the value of 6 – (-4). **A.** 2 **B.** -2 **C.** -10 **D.** 10	
33. Find the value of 6×-7. **A.** -1 **B.** -42 **C.** 42 **D.** 6	
34. One night the temperature outside was 22°F. The temperature dropped 31°F overnight. Which expression can you use to find the temperature in the morning? **A.** -31 + (-22) **B.** 22 – (-31) **C.** 22 + (-31) **D.** 31 + (-22)	
35. Find the value of -8×-3. **A.** -24 **B.** 24 **C.** 11 **D.** -11	
36. Find the value of $25 \div (-5)$. **A.** 20 **B.** 5 **C.** -5 **D.** -20	

Skill 9: Translations

37. Which variable expression corresponds to "10 less than a number"? **A.** x ÷ 10 **B.** 10 – x	

C. x + 10 **D.** x – 10	
38. Which word phrase could correspond to the variable expression $\frac{n}{15}$? **A.** 15 divided by a number **B.** a number divided by 15 **C.** 15 times a number **D.** a number decreased by 15	
39. Write a variable expression that corresponds to "the product of 6 and t." **A.** 6 – t **B.** 6 + t **C.** 6t **D.** 6 ÷ t	
40. A car travels *m* miles per hour. Which variable expression represents the number of miles traveled in 8 hours? **A.** $\frac{m}{8}$ **B.** m – 8 **C.** 8m **D.** 8 + m	

Skill 10: Solving One-Step Equations

41. Solve x – 3 = -3 **A.** 0 **B.** 3 **C.** -3 **D.** 6	
42. Solve n + 1 = -4 **A.** -3 **B.** -5 **C.** 5 **D.** 3	
43. Solve 56 = -8t **A.** 7 **B.** -8	

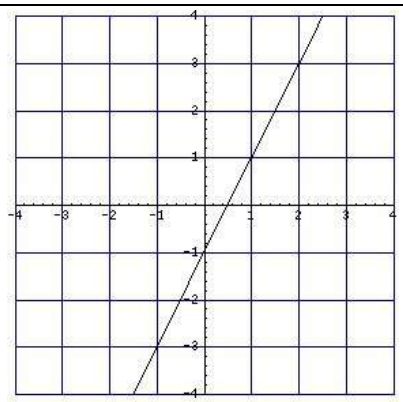
C. 8 **D.** -7	
44. Solve $\frac{y}{-4} = -12$ **A.** 3 **B.** 48 **C.** -48 **D.** -3	

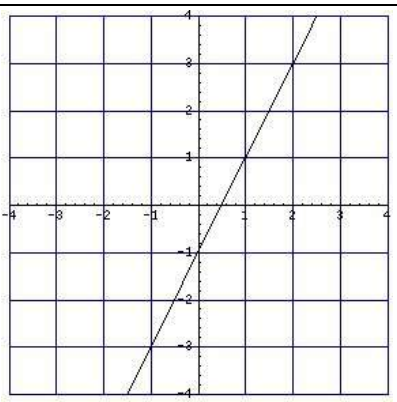
Skill 11: Solving Two-Step Equations

45. Solve $2x + 6 = 4$ **A.** -1 **B.** 5 **C.** 1 **D.** 3	
46. Solve $-3x - 12 = 12$ **A.** -8 **B.** 8 **C.** 0 **D.** -4	
47. Solve $1 = 9x - 8$ **A.** -1 **B.** 1 **C.** 3 **D.** -2	
48. Solve $\frac{x}{8} + 2 = 3$ **A.** 1 **B.** 22 **C.** 8 **D.** -8	

Skill 12: Lines and Slope

49. Which equation is represented by the graph below?	





A. $y = \frac{1}{2}x - 1$

B. $y = -1x + 2$

C. $y = -2x + 1$

D. $y = 2x - 1$

50. Find the slope of the line given by the equation

$$y = -\frac{1}{2}x + \frac{4}{5}$$

A. $\frac{-1}{2}$

B. $\frac{-1}{4}$

C. $\frac{4}{10}$

D. $\frac{4}{5}$

51. Find the slope of a line that passes through (4, 2) and (-2, 4)

A. 3

B. -3

C. $\frac{-1}{3}$

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

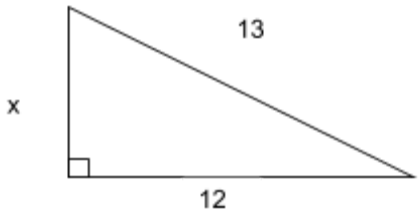
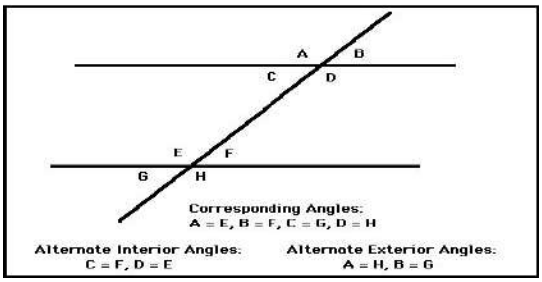
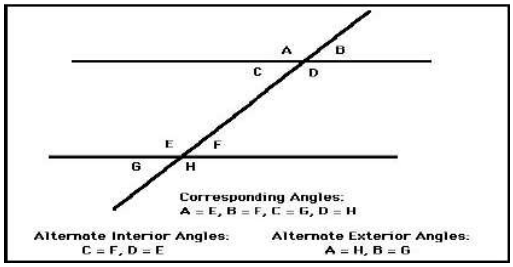
52. Find the *sum* of the slope and y-intercept of the line $2y - 3 = -6x$

A. -3

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

C. $\frac{3}{2}$ **D.** 3	

Skill 13: Geometric Reasoning

53. How would you describe the two shapes below? A. Congruent  B. Similar C. Skew D. Square	
54. Find the length of the missing side of the triangle. **A.** 4 **B.** 5 **C.** 6 **D.** 7 	
 **55.** Which of the following angles are supplementary? **A.** A and E **B.** A and D **C.** A and C **D.** E and H	
 **56.** Which angles are congruent to angle B? **A.** A and D only **B.** C only **C.** C, G, and F only. **D.** A, D, E, and H only.	