Jakarta International School

7th Grade

Name: _____

Date: _____

Practice Test - Blue

Score: ____/45

Algebraic Expressions and Integers

Clearly show required work. Check Carefully!

1. Write a variable expression for the word phrase. **(2)**

a) 5 less than the quotient of 10 and the product of 2 and a number.

2. James is at a point 3 km from home. He starts riding his bike at $\frac{1}{4}$ km per minute toward home. Justin rides for x minutes. **(6pts)**

a) Write an expression for the number of kilometers he has ridden.

b) Write an expression for the number of kilometers he is away from home.

c) How far is he from home after 8 minutes?

3. Use the formula $\frac{1}{G}=\frac{1}{g_1}+\frac{1}{g_2}+\frac{1}{g_3}$ to evaluate G when $g_1=\frac{3}{4}, g_2=\frac{5}{8}, g_3=1\frac{1}{2}$ **(3pts)**

4. Evaluate the expression when x = 8, y = x-13 and z = -y(x+12)
Show your steps for full value. **(6pts)**

a) x + [2 • (z ÷ y) – 3]

b) $\dfrac{|y|+18\div 2}{23-2x}$

5. Insert an operation symbol for addition, subtraction, multiplication, or division in each blank to make the statement true. **(1)**

$$60 \_\_\_ (4 \_\_\_ 6) \_\_\_ 5 \_\_\_ 3 = 65$$

6. Order the numbers from least to greatest. **(2)**

$$-|23|, -|-18|, 19, -|-(21)|, 27, -17, -(-19)$$

7. Tell whether x is a positive integer or a negative integer. **(2)**

$$-x = -|x|$$

8. Evaluate the expression when a=-7 and b=8. **(2pts)**

$$-|b-(-a)|$$

9. In the statement, a and b are nonzero integers. Explain what must be true about the values of a and b. **(2)**

$|a+b|=|a|+|b|$

10. The variables a and b are integers. Tell whether the value of the expression is positive, negative or could be either under the given conditions. **(2)**

$|b|-a$ given that $b<a$

11. You have the choice of answering **either** of the following questions with full explanations. **(3)**

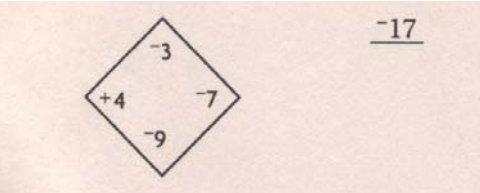
a) Can the sign of (a-b) be determined by knowing only the signs of a and b? Provide an explanation or counterexample for each case.

b) When is $|a-b|>|a|-|b|$? Give an example.

12. What would be the value of n if the average of these numbers was -7? **(2)**

4, -12, -18, 2, n

13. Each diamond has four integers. If you perform three different operations on these integers, you will produce the underlined amount. **(3)**

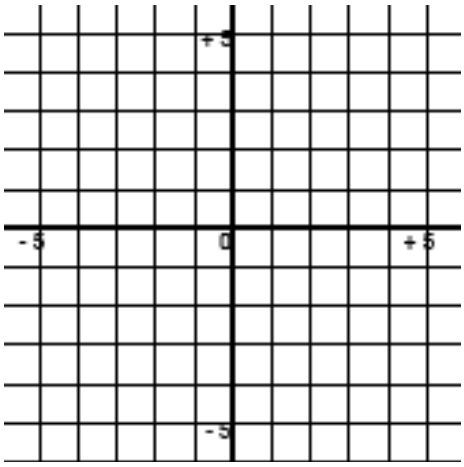


A. _____

B. _____

C. _____

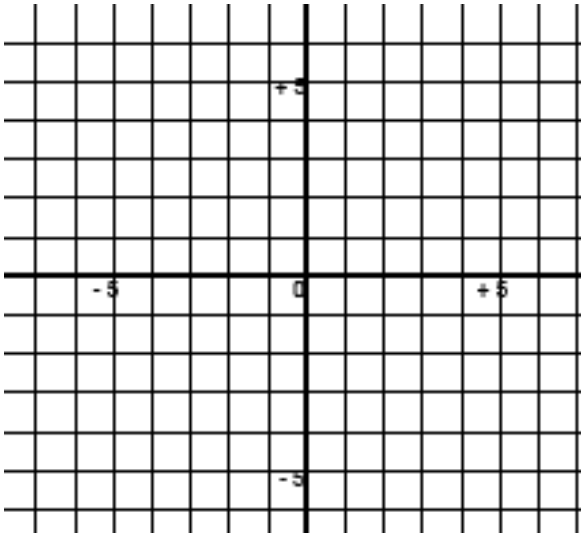
14. The points (-1,2) and (3,-3) are two vertices of a right triangle. What are the possible coordinates of the third point? Use the following coordinate plane to find your solutions. What is the area of the triangle? **(3)**



15. What can be determined about the signs of x and y if (x,y) lies…. **(2pts)**

a) in the second quadrant

b) on the y-axis



16. If a coordinate plane were placed on top of the map of "Math City", Algebra Lane would go through the points (-2,6) and (2 ,-2). Geometry Boulevard runs perpendicular to Algebra Lane and passes through the points (4, 4) and (-4,y). What is the value of y? Carefully find this answer using the graph paper provided, a ruler and a protractor.**(4)**