



Jakarta International School
7th Grade

Practice Test - Blue
Simplifying Expressions and
Solving Basic Equations

Name: _____

Date: _____

Score:

50

1. For the expression $3(2x-4)$

a) Use an Algebra Tile model to multiply. (1pt)

b) Use the Distributive Property to simplify the expression (1pt)

c) How would you explain to a 6th grader why the distributive property works (in problem like number 3) using the Algebra Tile model (in problem a like number 2)? (1pt)

2. Simplify using the Distributive Property (hint: if it helps, draw a rectangle area picture to help yourself) (2 points)

a. $4 \cdot 19 - 4 \cdot 11$

b. $4 \cdot 1150$

3. Use the Distributive Property to solve the following problem. Show your work.

At the grocery store Ryan was finding the mass of peaches. He discovered that the average mass of a peach was 297 g. Find the mass of 8 peaches. (2pts)

4. Create a "machine" to help you solve this equation using backtracking. Check your solution. (2pts)

$$\frac{3\left[7\left(\frac{x+4}{6}\right)+6\right]}{10}+11=17$$

5. Vocabulary Check. Fill in the blank. (6pts)

- a) A _____ is a term that has no variable.
- b) A mathematical sentence with an equal sign is called a(n)_____.
- c) _____ are terms with the same variables.
- d) In the expression: $3x - y + 16$, 3 is the _____ of x.
- e) Operations that undo each other are called _____.
- f) Any value or values that make an equation true is called the _____ of the equation.

6. Simplify being careful to observe the correct order of operations, and write the answer in its simplest form: (6pts)

a) $7(2x - 3y) - 5(x + y)$

b) $3b + 6\{4 - 2[b - (7 + b)]\}$

c) $x(y + 8y + 3)$

7. At your birthday you are going to give your friends cupcakes. Let c be the number of chocolate cupcakes you buy. You plan on giving triple the number of vanilla cupcakes as chocolate cupcakes and 8 more strawberry cupcakes than chocolate cupcakes. Write and simplify an expression that represents the total number of cupcakes that you will buy. (2pts)

8. Circle the ordered pairs that are solutions of the linear equation $y = -6x + 4$? (2pts)

(2,16)

(-6, 40)

(4,-20)

Give another ordered pair that would be a solution. _____

9. Solve the following equations using Inverse Operations. Check your solution. (3 points each: 1 point for correct work, 1 point for correct answer, 1 point for correct check step) (9pts)

a. $\frac{18+b}{-3} = 25$

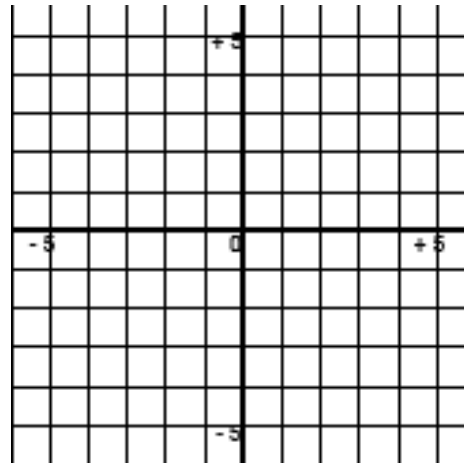
b. Solve for a: $\frac{a}{b} - c = d$

c. $2|x| = 17$

10. Complete the table of values and graph the function: (2pt)

$y = x^2 - 3$

x	y
-2	
-1	
0	
1	
2	



11. For each word problem, define a variable, write an equation, solve the equation using inverse operations, and check your answer to make sure it makes sense. (8pts)

(4 points each: 1 pt for defining the variable, 1 pt for correct equation, 1 pt for correct work/answer, 1 pt for correct check step)

a) Olivia wants to buy a car which costs \$32,000. She pays a deposit of \$14,000 and then arranges to pay an amount each month for the next three years. How much should each monthly payment be if she wishes to pay off the car in three years?

b) Ji Won bought 5 cartons of milk and received Rp. 20,000 in change. If he gave Rp. 100,000 to the shop keeper, work out the cost of each carton of milk.

12. Two trains, traveling towards each other, left from two stations that are 800 km apart at 6 pm. If the rate of the first train is 150 km/h and the rate of the second train is 170 km/h, at what time will they pass each other? (2pts)

13. C leaves home going 40 kilometers per hour. When C is 9 km from home, D starts after C from the same place, going 58 km/h. How long does it take D to catch up with C? (2 pts)

14. Milo's Mile (2pts)

Milo was thinking when he was out running,
"How fast I am running just might be stunning!"

Five miles an hour is his usual pace,
So it takes him 12 minutes for a one mile race.



"But if I run 6 miles an hour instead,
That's a 10-minute mile!" he did in his head.

Compute Milo's times for running a mile
at speeds 3 to 10 miles an hour, then smile

And look at the data to help us to see
How the number of minutes changes with speed.

Five miles per hour to six loses two.
Now look at the others - is that what they do?

Or is the change different for other changes in time?
You'll get extra credit if you write in a rhyme. (+1)