

## Mathematics Worksheet

Name: \_\_\_\_\_.

Date: \_\_\_\_\_.

Grade: 8th

Each section includes 5 questions based on your study guide topics. Read each question carefully and answer.

### 1-1 Solving Linear Equations

1. Solve for ( x ):  $5x - 7 = 18$

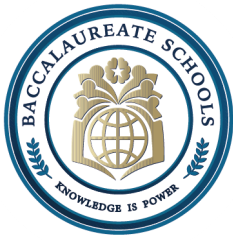
Ans:

2. Solve for ( x ):  $\frac{2x}{3} + 4 = 10$

Ans:

3. Explain why performing the same operation on both sides of an equation keeps the equality true.

Ans:



4. A taxi company charges a flat fee of **\$4** plus **\$2.50 per mile**. Write and solve an equation to find how many miles you can travel for **\$24**.

Ans:

5. Solve for ( x ):  $7x + 3 = 4x + 15$

Ans:

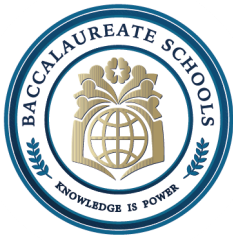
### 1-2 Solving Equations with Variables on Both Sides

1. Solve for ( x ):  $6x + 2 = 3x + 11$

Ans:

2. Solve for ( x ):  $5x - 4 = 5x + 6$ . What type of solution does this equation have: one, none, or infinitely many?

Ans:



3. Solve for ( x ):  $8x - 9 = 3x + 6$

Ans:

4. Explain what it means if both sides of an equation simplify to the same expression (for example,  $2x + 5 = 2x + 5$  ).

Ans:

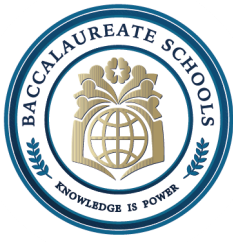
5. Write an equation that has **no solution**, and explain why it has no solution.

Ans:

### 1-3 Literal Equations and Formulas

1. Solve the formula  $A = lw$  for  $w$ .

Ans:



2. Solve for (  $h$  ) in the formula  $V = \pi r^2 h$

Ans:

3. Rearrange the formula  $C = 2\pi r$  to find  $r$ .

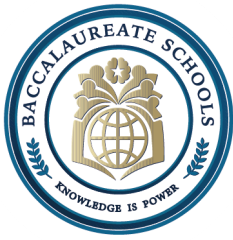
Ans:

4. The area of a triangle is given by  $A = \frac{1}{2}bh$ . Rearrange this formula to solve for (  $b$  ), and then find (  $b$  ) if  $A = 30$  and  $h = 5$ .

Ans:

5. A car travels at a constant speed (  $s$  ). The formula (  $d = st$  ) relates distance, speed, and time. Solve for (  $t$  ), and find (  $t$  ) when (  $d = 240$  ) km and (  $s = 80$  ) km/h.

Ans:



### 1-4 Solving Inequalities in One Variable

1. Solve and graph on a number line:  $3x - 4 < 11$

Ans:

2. Solve for ( x ):  $5x + 7 \geq 22$

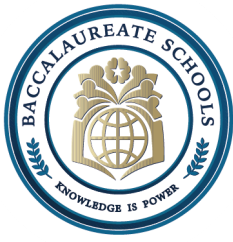
Ans:

3. A movie theater can seat **at most 250 people**. If there are already **180 people seated**, write and solve an inequality to find how many more people can enter.

Ans:

4. Solve and interpret the inequality:  $-2x > 8$  [*Remember to reverse the inequality sign when dividing by a negative number.*]

Ans:



5. Decide if the inequality (  $4x + 3 < 2x + 9$  ) is **true or false** for (  $x = 2$  ).