algebraforall

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Sample Activity Purple

ORIGO EDUCATION

Stepping Stones

Using familiar shapes to represent unknowns

AIM

Students will replace unknowns with numbers in systems of equations and identify the relationships between the unknowns.

MATERIALS

- 1 copy of the blackline master (opposite) for each student

REFLECTION

Review the different strategies students used to solve the problems on the blackline master.

1 Write the equations shown below on the board.

△ + ○ + △ = 19 ○ + △ = 12

Say, *We are going to figure out the values of the circle and the triangle so that both equations are true. How are the equations different?* (The 1st equation has 1 more triangle than the 2nd equation.) *How are they the same?* (Both equations have a circle and a triangle.) *What do we know about the values of the shapes?* (Same shapes have the same value. Different shapes may have different values.) *If the value of the circle in the 2nd equation is 11, what is the value of the triangle?* On the board, draw a table as shown below, and ask the students to give whole-number solutions for the values of the circle and the triangle in the 2nd equation.

○	11						
△	1						

Ask, *Which pair of numbers from the table makes the 1st equation true?* (5 for the circle and 7 for the triangle.) *How can we check?* (Substitute their values in the 1st equation.)

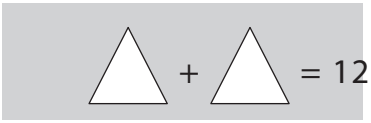
2 Together, read Question 1 on the blackline master. Discuss ways of figuring out the unknowns. Ask the students to complete the blackline master. Call on volunteers to share their solutions.

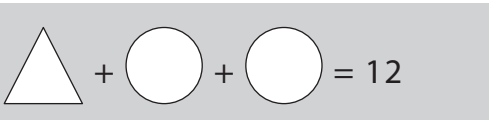
Stepping Stones

Name _____

Write values for the shapes to make the equations true. Same shapes have same values.

1.



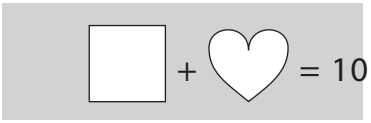


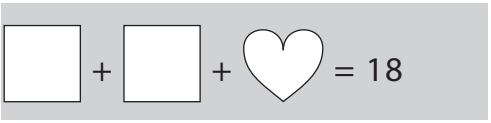
 = _____  = _____

Write how you figured it out. _____

_____

2.





 = _____  = _____

Write how you figured it out. _____

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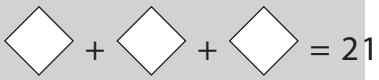
3.



 = _____  = _____

Write how you figured it out. _____

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