1. Write an equation for each part-whole model. Work out the value of the multilink cube in each equation.

   a) \[3x = 6\]
   
   \[\frac{3x}{3} = \frac{6}{3}\]
   
   \[x = 2\]

   b) \[x + 4 = 18\]
   
   \[\frac{x + 4}{1} = \frac{18}{1}\]
   
   \[x + 4 = 14\]

2. There are some counters under the cup.

   There are 10 counters in total.
   a) If \(c\) is the number of counters under the cup, explain why \(c + 6 = 10\)
   
   \(c = 4\)

   b) Work out the value of \(c\).
   
   \(c = 4\)

   c) How many counters are under the cup?
   
   \(c = 4\)

3. Write algebraic equations to represent the bar models. Find the value of \(a\) in each one.

   a) \[\begin{array}{c}
   \hline
   8 \\
   \hline
   a \\
   a \\
   \hline
   \end{array}\]
   
   \(a = 4\)

   b) \[\begin{array}{c}
   \hline
   15 \\
   a \\
   \hline
   \end{array}\]
   
   \(a = 5\)

   c) \[\begin{array}{c}
   \hline
   a \\
   \hline
   3 \\
   3 \\
   3 \\
   \hline
   \end{array}\]
   
   \(a = 9\)

   d) \[\begin{array}{c}
   \hline
   a \\
   \hline
   7 \\
   6 \\
   \hline
   \end{array}\]
   
   \(a = 13\)

4. Nijah is solving the equation \(x - 8 = 20\)

   \[x - 8 = 20\]
   
   \[x = 20 - 8\]
   
   \[x = 12\]

   What mistake has Nijah made?
   
   She should have added 8 to 20
   
   \[x = 28\]
5. Solve the equations.
   a) \( x + 7 = 20 \)  
   \( x = 13 \)
   b) \( 10y = 80 \)  
   \( y = 8 \)
   c) \( 4m = 22 \)  
   \( m = 5.5 \)
   d) \( g - 3 = 15 \)  
   \( g = 18 \)
   e) \( 32 = t - 5 \)  
   \( t = 37 \)
   f) \( \frac{u}{6} = 3 \)  
   \( u = 18 \)

6. Filip thinks of a number.
   He subtracts 5 from his number.
   He ends up with 10
   Write an algebraic equation to represent Filip’s problem.
   \( x - 5 = 10 \)

   Solve the equation to work out his number.
   \( x = 15 \)

7. Dexter builds a tower.
   Each block is \( 2a \) high.
   He uses 7 blocks.
   The total height of his tower is 42 cm.
   Write an equation to represent the height of Dexter’s tower and find the value of \( a \).
   \( 14a = 42 \)  
   \( a = 3 \) cm

8. Work out the value of each shape.
   Write the equations that you solved to find the value of each shape.
   \[ \begin{array}{ccc}
   \star & \bigtriangleup & \star \\
   \bigtriangleup & \star & \bigtriangleup \\
   \star & \bigtriangleup & \star \\
   \end{array} \]
   \( \star = 6 \)  
   \( \bigtriangleup = 2 \)  
   \( \text{Total} = 40 \)  
   \( \text{Total} = 20 \)  
   \( \text{Total} = 32 \)

   Work out the missing total of each row and column.
   Compare answers with a partner.