1. Solve the following equations if possible. If your solution is a fraction, you do not need to convert it. If an equation has no solutions, write “No solutions,” and if it has all real numbers as solutions, write “Infinitely many solutions.” (Remember that you can test numeric answers to see if they’re correct.)

   a) \( \frac{5}{3}k - 7 = \frac{1}{2} \)
   
   \[ 10k - 42 = 3 \]
   
   \[ 10k = 45 \]
   
   \[ k = \frac{45}{10} \text{ or } \frac{9}{2} \text{ or } 4.5 \]

   b) \( 5r + 16 = 8(r + 2) - 3r \)
   
   \[ 5r + 16 = 8r + 16 - 3r \]
   
   \[ 5r + 16 = 5r + 16 \]
   
   Identical, so infinitely many solutions

   c) \( 5 + 3(z - 1) = 7 - 9(z - 2) \)
   
   \[ 5 + 3z - 3 = 7 - 9z + 18 \]
   
   \[ 2 + 3z = -9z + 25 \]
   
   \[ -2 + 9z + 9z - 2 \]
   
   \[ 12z = 23 \]
   
   \[ z = \frac{23}{12} \]

2. Solve the inequality \( 3(4y - 7) \geq 16y + 23 \) algebraically, THEN write your solution using BOTH a graph and interval notation.

   \[ 12y - 21 \geq 16y + 23 \]
   
   \[ -16y + 21 -16y + 21 \]
   
   \[ -4y \geq \frac{44}{-4} \]
   
   \[ y \leq -11 \]
   
   Graph: \[ -11 \rightarrow \]
   
   Int: \( (-\infty, -11] \)

3. Draw the graph and write the interval that describes \( 1 < a \leq 7 \).

   Graph: \[ 1 \rightarrow \]
   
   Int: \( (1, 7] \)
1. Solve the following equations if possible. If your solution is a fraction, you do not need to convert it. If an equation has no solutions, write “No solutions,” and if it has all real numbers as solutions, write “Infinitely many solutions.” (Remember that you can test numeric answers to see if they’re correct.)

   a) \(8(r + 2) - 3r = 5r + 14\)

   \[
   \begin{align*}
   8r + 16 - 3r &= 5r + 14 \\
   5r + 16 &= 5r + 14 \\
   -5r &= -5r \\
   16 &= 14 \\
   \end{align*}
   \]

   False, so no solutions.

   b) \(\left(\frac{2}{5}k - 3 = \frac{1}{4}\right) \cdot 20\)

   \[
   \begin{align*}
   8k - 60 &= 5 \\
   8k &= 65 \\
   k &= \frac{65}{8} \text{ or } 8.125
   \end{align*}
   \]

   c) \(5 + 3(a - 1) = 7 - 9(a - 2)\)

   \[
   \begin{align*}
   5 + 3a - 3 &= 7 - 9a + 18 \\
   2 + 3a &= 25 - 9a \\
   -2 + 9a &= -2 + 9a \\
   12a &= 23 \\
   a &= \frac{23}{12}
   \end{align*}
   \]

2. Solve the inequality \(3(4z - 7) \leq 16z + 15\) algebraically, THEN write your solution using BOTH a graph and interval notation.

   \[
   \begin{align*}
   12z - 21 &\leq 16z + 15 \\
   -16z + 21 &\leq -16z + 21 \\
   -4z &\leq 36 \\
   -4 &\leq -4 \\
   z &\geq -9
   \end{align*}
   \]

   Graph: \((-\infty, -9]\)

3. Draw the graph and write the interval that describes \(-2 \leq c < 5\).