

# Solving Inequalities Involving Algebraic Fractions



# Solving Inequalities Involving Algebraic Fractions

1. Solve these inequalities

a)  $\frac{a}{4} < 3$

b)  $\frac{a}{4} \leq -3$

c)  $5 \geq \frac{a}{4}$

d)  $2.5 \geq \frac{a}{4}$

e)  $\frac{a}{2} + \frac{a}{2} < 4$

2. What mistake has Amir made?

$$\begin{array}{c} \frac{a}{2} > 7 \\ \times 2 \quad \downarrow \quad \times 2 \\ a = 14 \end{array}$$

3. Match the number cards with their answers.

$a \leq 20$

$\frac{a}{4} < 2.5$

$4 < a$

$a < 10$

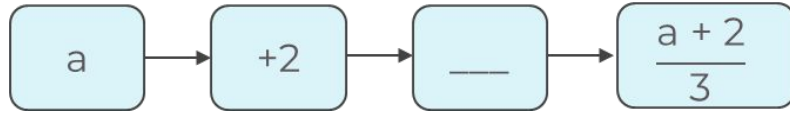
$\frac{a}{4} \leq 5$

$\frac{4}{a} < 1$



# Solving Inequalities Involving Algebraic Fractions

4. Complete the function machine.



5. Which inequality matches the statement?

I think of a number divide it in two and then add three, it is less than five.

$$\frac{a}{2} + 3 < 5$$

$$\frac{a+2}{3} < 5$$

$$\frac{a}{3} + 2 < 5$$

6. Solve for a

a)  $\frac{a}{3} + 2 > 6$

b)  $\frac{a}{3} - 2 \leq 2.5$

c)  $\frac{a+2}{3} \geq 6$

d)  $\frac{a-2}{3} < 6$

e)  $6 < \frac{a-2}{3}$

7. Represent the inequality  $\frac{a}{3} + 5 > 6$  on the number line.



# Answers



# Solving Inequalities Involving Algebraic Fractions

1. Solve these inequalities

a)  $\frac{a}{4} < 3$      $a < 12$

b)  $\frac{a}{4} \leq -3$      $a \leq -12$

c)  $5 \geq \frac{a}{4}$      $20 \geq a$  or  $a \leq 20$

d)  $2.5 \geq \frac{a}{4}$      $10 \geq a$  or  $a \leq 10$

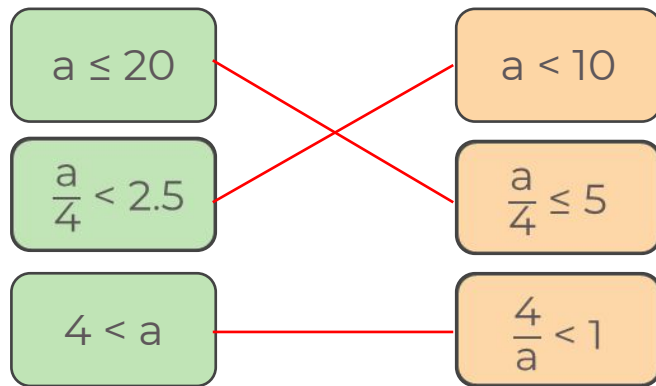
e)  $\frac{a}{2} + \frac{a}{2} < 4$      $a < 4$

2. What mistake has Amir made?

$$\begin{array}{c} \frac{a}{2} > 7 \\ \times 2 \quad \downarrow \quad \times 2 \\ a = 14 \end{array}$$

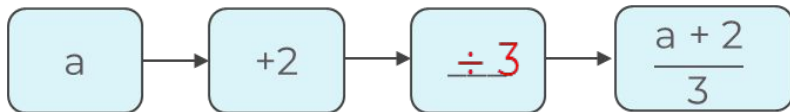
He has used an equal sign instead of >

3. Match the number cards with their answers.



# Solving Inequalities Involving Algebraic Fractions

4. Complete the function machine.



5. Which inequality matches the statement?

I think of a number divide it in two and then add three, it is less than five.

$$\frac{a}{2} + 3 < 5$$

$$\frac{a+2}{3} < 5$$

$$\frac{a}{3} + 2 < 5$$

6. Solve for a

a)  $\frac{a}{3} + 2 > 6$

$$a > 12$$

b)  $\frac{a}{3} - 2 \leq 2.5$

$$a \leq 13.5$$

c)  $\frac{a+2}{3} \geq 6$

$$a \geq 16$$

d)  $\frac{a-2}{3} < 6$

$$a < 20$$

e)  $6 < \frac{a-2}{3}$

$$20 < a \text{ or } a > 20$$

7. Represent the inequality

$\frac{a}{3} + 5 > 6$  on the number line.

