

Interleaved: equations and inequalities

ANSWERS

1
Solve $3x + 7 = 22$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
an equation: subtract 7, then divide by 3

Answer $x = 5$

2
Solve $5 - 2x > 11$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $-2x > 6$; dividing by -2 flips the sign

Answer $x < -3$

3
Solve $4x - 3 \leq 17$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $4x \leq 20$; dividing by 4 keeps the sign

Answer $x \leq 5$

4
Solve $7 - 3x = 19$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $-3x = 12$: an equation has no sign to flip

Answer $x = -4$

5
Solve $2(4 - x) < 14$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $8 - 2x < 14$, $-2x < 6$, divide by -2 and flip

Answer $x > -3$

6
Solve $\frac{x}{3} + 2 > -1$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $\frac{x}{3} > -3$, so $x > -9$: a negative number, but no flip

Answer $x > -9$

7
Solve $5(x - 2) = 3x + 4$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $5x - 10 = 3x + 4$, $2x = 14$

Answer $x = 7$

8
Solve $3 - 4x \geq x + 18$

Which method? **Equation**
Inequality, sign stays Inequality, sign flips
 $-5x \geq 15$; divide by -5 and flip

Answer $x \leq -3$

Interleaved: equations and inequalities further practice

ANSWERS

9
Find the largest whole number n that satisfies $6n + 5 < 41$

$6n < 36$, $n < 6$

Answer 5

10
Solve $10 - 3x \leq 1$

$-3x \leq -9$; divide by -3 and flip

Answer $x \geq 3$

11
Solve $\frac{2x+1}{3} = x-2$

$2x + 1 = 3x - 6$

Answer $x = 7$

12
List the integers that satisfy $-1 < 2 - x \leq 3$

$-3 < -x \leq 1$, so $-1 \leq x < 3$ after flipping

Answer $-1, 0, 1, 2$

13
Solve $4(x+3) > 2x-6$

$2x > -18$, divide by 2: the sign stays

Answer $x > -9$

14
Mia thinks of a number. She multiplies it by -3 and then adds 20. Her answer is 32. Find her number.

$-3n + 20 = 32$, $-3n = 12$

Answer -4

15
Solve $\frac{x}{2} - 7 > -4$

$\frac{x}{2} > 3$: negative numbers, but no dividing by a negative

Answer $x > 6$

16
Leo solves $8 - 2x > 4$ and gets $x > 2$. Explain his mistake and give the correct answer.

dividing by -2 flips the sign; check: $x = 3$ gives $2 > 4$, false

Answer $x < 2$