

1.3

SOLVING EQUATIONS WITH VARIABLES ON BOTH SIDES

DO NOW

Solve the equation. Check your solution.

1) $\frac{g}{5} - 7 = 12$

DO NOW

Solve the equation. Check your solution.

2) $2x + 3x - 5 = 25$

DO NOW

Solve the equation. Check your solution.

3) $3(x - 6) + 10 = 16$

DO NOW

Solve the equation. Check your solution.

4) $2(1 - 5x) + 4 = -8$

Examples

- 1) Cancel the “smallest variable term”
- 2) Collect constant terms on the other side

a) $13 + 5x = 2x - 8$

b) $2m - 6 = 12 - 4m$

c) $34 - 3x = 14x$

Practice

1) $7 - 8x = 4x - 17$

2) $9 - 3k = 17 - 2k$

Multi-step with variables on each side of the equation

- 1) Simplify each side of the equation
- 2) Collect variable terms on one side
- 3) Collect constant terms on the other side

a) $3 - 4y = 5(y - 3)$

b) $3z - 10 + 4z = 5z - 7$

Classwork

1) $y = 24 - 3y$

Classwork

2) $-7a = -12a - 65$

Classwork

3) $7(a - 2) = 3a + 14$

Classwork

4) $4(r-9)+2=12r+14$

Classwork

5) $5(2+n)=3(n+6)$

Classwork

6) $3(2+v)-4v=v+16$

No Solution vs Infinitely Many

An equation has **NO SOLUTION**:

if once you solve, one side can NOT be equal to the other side...

An equation is has **INFINITELY MANY SOLUTIONS**:

if once you solve, one side is ALWAYS equal to the other side...

Examples

a) $13+x=2x-8$

$$b) \quad 2m - 6 = -6 + 2m$$

$$c) \quad 3x = 3(x + 4)$$