

HANDS-ON EQUATIONS
Worksheet #1
Using Positive Numbers

Name: _____ Period: _____

Set up each problem on the balance scale using the pawn and number cubes.

1. $3x = 2x + 4$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $x + 6 = 4x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $5x = 2x + 6$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $3x + 5 = 4x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $4x = 1x + 9$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $3x + 18 = 5x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $10 + 2x = 5x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $3x = 14 + x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $8 + 2x = 6x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $4x = 2x + 12$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

HANDS-ON EQUATIONS
Worksheet #2
Using Negative Numbers

Name: _____ Period: _____

Set up each problem on the balance scale using the pawn and number cubes.

1. $3x = 2x - 4$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $x - 6 = 4x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $5x = 2x - 6$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $3x - 5 = 4x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $4x = 1x - 9$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $3x - 18 = 5x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $10 - 2x = 5x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $3x = 14 - x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $8 - 2x = 6x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $4x = 2x - 12$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

HANDS-ON EQUATIONS

Worksheet #3

Using Positive Numbers and Variables on Both Sides

Name: _____ Period: _____

Set up each problem on the balance scale using the pawn and number cubes.

1. $2x + 5 = 3x + 3$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $x + 10 = 4x + x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $4x + 2 = 2x + 6$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $14 + x = 3x + 8$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $x + 2 + 4x = 10 + x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $4x + 1 = 2x + 13$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $x + 3 + 2x = x + 5$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $x + 12 = x + 2 + 2x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $x + x + 10 = x + 3x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $x + 13 = x + 4 + 3x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

HANDS-ON EQUATIONS

Worksheet #4

Using Positive, Negative Numbers and Variables on Both Sides

Set up each problem on the balance scale using the pawn and number cubes.

1. $4x - 2x + 6 = x + 12$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $x + 4x - x = 20$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $8 + 2x + 3 = x + 2x + 1$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $2x - x + 7 = 3x - x + 2$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $4x - 2x + 2 = 4x - 4$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $5x - 6 = 3x + 2$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $3x - 5 = x - 3 + x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $4x - 5 + x = 3x - 9$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $-6 + 2x - 8 = 5x + 1$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $-1 + x + 3 = 4x + 5$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

HANDS-ON EQUATIONS

Worksheet #5

Using Positive, Negative Numbers and Variables on Both Sides

Set up each problem on the balance scale using the pawn and number cubes.

1. $4x - 2x - 6 = x - 12$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $x + 4x - x = -20$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $8 + 2x - 3 = 4x - x - 1$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $2x - x - 7 = 3x - x - 2$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $4x - 2x - 12 = 4x - 4$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $3x - 6 = -3x - 2$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $3x - 5 = x - 2 - x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $4x - 5 - x = -2x + 10$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $-6 + 2x - 8 = 5x + 1$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $-2 - x - 8 = 4x + 5$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

HANDS-ON EQUATIONS

Worksheet #6

Using the Distributive Property with Positive and Negative Numbers

Set up each problem on the balance scale using the pawn and number cubes.

1. $2(x + 2) = 10$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $2(2x + 1) = x + 11$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $4(x + 3) = x + 18$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $2(x - 1) = 8$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $3(2x - 1) = 15$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $4(x - 2) = 4$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $2(2x - 2) = 16$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $2(3 + x) = 17$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $3(1 + x) = 18$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $2(2 + x) = -4$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

HANDS-ON EQUATIONS

Worksheet #7

Mixed Equations

Set up each problem on the balance scale using the pawn and number cubes.

1. $4x + 4 = 16 + 2x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. $5x - 3 = 2x - 9$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

3. $2(x + 3) = 3(x - 1)$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4. $4(x - 1) = 2(x + 1)$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

5. $3x - 3 + 2x = -x + 3 - x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

6. $7 - 3x + 1 = 2(x - 1)$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

7. $-4 - 2x - 8 = 3x - 7$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

8. $4 + 2x + 8 = -3x + 7$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

9. $1 + 2(x + 2) = 3x - 9 + x$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

10. $2 + 5x - 5 = 3(x - 2)$ $x = \underline{\hspace{2cm}}$ Check: $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$