

Date:

Section 2.1
Intermediate Algebra
Digital Notes

Linear Equations in One Variable

Definition - An **equation** is

Variable Expression vs Equation

Definition - A **solution** is

Example - Is $x = 12$ a solution to the equation $\frac{1}{2}x - 4 = \frac{1}{3}x - 2$?

Now try 10, 14. (More practice? 9, 13).

Properties of Equality

Property - The **Addition Property of Equality** is

Property - The **Multiplication Property of Equality** is

Example - Solve: $x + 2 = 10$

Example - Solve: $2x - 3 = 25$

Example - Solve: $-3x - 19 = 5 - 2x$

Example - Solve: $2(x + 9) - x = 36$

Now try 16, 18, 22, 26, 30, 34, 38. (More practice? 15, 17, 21, 25, 29, 33, 37).

Dealing with Multiple Fractions

Trick - Multiply both sides of the equation by the common denominator (LCD) of all the fractions.

Example - Solve: $\frac{x}{3} + \frac{1}{2} = \frac{7}{6}$

Example - Solve: $\frac{y-3}{3} - \frac{y-2}{2} = -1$

Now try 42, 46, 48, 50. (More practice? 39, 41, 45, 47, 49).

Types of Equations

Definition - A **conditional equation** is

Definition - An **identity** is

Definition - An **inconsistent equation** is

Example - Solve. Identify the type of equation: $2(x + 1) = 2(x + 3)$

Example - Solve. Identify the type of equation: $x + x = 2x$

Example - Solve. Identify the type of equation: $2\left(\frac{1}{2}x + \frac{3}{2}\right) - \frac{7}{2} = \frac{3}{2}(x + 1) - \left(\frac{1}{2}x + 2\right)$

Now try 60, 62, 66, 70, 74. (More practice? 63, 65, 67, 69, 73).

Miscellany

Example - Solve: $4 - 6(2x - 3) + 1 = 3 + 2(5 - x)$

Example - Solve: $-\frac{3}{5}y = 9$

Now try 54, 76, 78, 82, 84. (More practice? 77, 81, 83).