

Notes 1-3

Int 2

One-Step Equations with Rational Coefficients

Unit 1

Warm-up:

Evaluate.

1. $\frac{3}{4} \div \frac{18}{7}$

$\frac{1}{\cancel{4}} \cdot \frac{7}{\cancel{18}_6} = \frac{7}{24}$

$\frac{\frac{3}{4}}{\frac{18}{7}}$

2. $\frac{4.3}{4.5} + \frac{1.5}{4.5}$

$\frac{12}{20} + \frac{5}{20} = \frac{17}{20}$

Vocabulary:

- **Reciprocal:** when we flip a fraction over

- **Inverse Operation:** opposite operation

$+$ \longleftrightarrow $-$

\times \longleftrightarrow \div

- **Multiplicative Inverse:**

when you multiply 2 fractions together it equals 1.

$\frac{2}{3} \cdot \frac{3}{2} = \frac{6}{6} = 1$

Solving Equations:

- What is happening to the variable?
- What is the opposite operation? (inverse operation)

$-\frac{3}{4} \cdot -\frac{4}{3} = \frac{12}{12} = 1$

Solve.

Ex. 1:

$\frac{\cancel{3}}{4}x = \frac{18}{1}$
 $\frac{3}{4}$
 $\frac{3}{4}$

$\frac{\cancel{6}}{1} \cdot \frac{1}{\cancel{3}}$

$x = 24$ $\frac{3}{1} \cdot \frac{1}{3} = \frac{3}{3} = 1$

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Ex. 2: $5.7 + x = -3.4$

$$\begin{array}{r} \cancel{5.7} + x = -3.4 \\ \hline x = -9.1 \end{array}$$

Ex. 3: $-\frac{2}{9}d = 4$

$$\begin{array}{r} \cancel{\frac{2}{9}}d = 4 \\ \hline \frac{-2}{9} \end{array}$$

$$\frac{2}{1} \cdot \frac{9}{-2} = -1$$

$$d = \frac{18}{-1}$$

$$d = -18$$

Ex. 4: $15 = \frac{5}{3}n$

$$\begin{array}{r} \frac{5}{3}n = 15 \\ \hline \frac{5}{3} \end{array}$$

$$\frac{3}{1} \cdot \frac{3}{5} = 1$$

$$n = 9$$

Ex. 5: $x + 3\frac{1}{4} = 2\frac{1}{2}$

$$x + \frac{13}{4} = 2\frac{1}{2}$$

$$\begin{array}{r} \frac{5 \cdot 2}{2 \cdot 2} \quad \frac{10}{4} \\ \hline -\frac{13}{4} \quad +\frac{13}{4} \end{array}$$

$$10 \neq 13$$

$$x = -\frac{3}{4}$$

Ex. 6: $\frac{5}{7} = \frac{1}{1}y$

$$-\frac{5}{7} = y$$

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Ex. 7: $4 = x - 5.7$

$$\begin{array}{r|l} +5.7 & +5.7 \\ \hline 9.7 = x & \end{array}$$

Ex. 8: $4\frac{1}{6} = 3\frac{1}{3}c$

$$\frac{25}{6} = \frac{10}{3}c$$

$$\frac{25}{6} \cdot \frac{3}{10} = \frac{3}{2}c$$

$$\frac{5}{2} = \frac{3}{2}c$$

$$c = \frac{5}{3}$$

Ex. 9: $-1.4m = 2.1$

$$\begin{array}{r|l} -1.4 & -1.4 \\ \hline m = -1.5 & \end{array}$$

Ex. 10: $-24 = -\frac{6}{7}p$

$$-24 = -\frac{6}{7}p$$

Ex. 11: $1\frac{1}{2}s = 16\frac{1}{2}$

$$\frac{3}{2}s = \frac{33}{2}$$

$$\frac{3}{2} \cdot \frac{2}{3} = \frac{33}{2} \cdot \frac{2}{3}$$

$$s = 11$$