

UNIT 2: EQUATIONS & INEQUALITIES

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Objectives: I can solve one step equations with fractional coefficients and solutions.

FRACTIONAL COEFFICIENTS AND SOLUTIONS

Sometimes you will have a fractional coefficient. (A coefficient is the number multiplied by the variable.) Sometimes your answers will be a fraction as well. Leave your answers as fractions.

Examples...

① $\frac{2}{5}x = 20$

What can you multiply $\frac{2}{5}$ by that will equal 1? $\frac{5}{2}$

Instead of dividing by the coefficient... multiply by the reciprocal.

$$\frac{5}{2} * \frac{2}{5}x = 20 * \frac{5}{2}$$

Cross-cancel if possible.

Remember!

$\frac{2}{5} \div \frac{2}{5}$ really $\frac{2}{5} \cdot \frac{5}{2}$

$\frac{2}{5} \sqrt{\frac{1}{5}}$ and $\frac{1}{5} \cdot \frac{5}{1} = 1$

Any number "goes into" itself ONE time ☺

check $\frac{2}{5}(\frac{50}{1}) = 20$
 $2 \cdot 10 = 20$
 $20 = 20 \checkmark$

$$\frac{5}{2} * \frac{2}{5}x = \frac{10}{20} * \frac{5}{2} \cdot 1$$

$x = 50$

②

$5x = 52$

Divide both sides by 5.

$$\frac{5x}{5} = \frac{52}{5}$$

Reduce if possible. Improper fractions do NOT HAVE to be changed to mixed numbers.

check $5(\frac{52}{5}) = 52$
 $52 = 52 \checkmark$

$x = \frac{52}{5} = 10 \frac{2}{5}$

Practice.

① $\frac{2p}{2} = \frac{-5}{2}$

check $2(\frac{-5}{2}) = -5$
 $-5 = -5 \checkmark$

$p = -\frac{5}{2}$

② $\frac{-46}{4} = \frac{4y}{4}$

check $\frac{-46}{4} = 4(\frac{-23}{2})$
 $-46 = -46 \checkmark$

$-\frac{23}{2} = y$

③ $\frac{8}{8} \cdot \frac{3}{8}d = \frac{60}{8} \cdot \frac{8}{5}$

check $\frac{5}{8}(\frac{6}{1}) = 30$
 $30 = 30 \checkmark$

$d = 48$

④ $\frac{-65}{20} = \frac{20t}{20}$

check $-65 = 20(\frac{-13}{4})$
 $-65 = -65 \checkmark$

$-\frac{13}{4} = t$

⑤ $(\frac{-10}{20}) - \frac{9}{20}k = -\frac{5}{20}(\frac{10}{20})$

check $\frac{-39}{20}(\frac{50}{3}) = -15$
 $-15 = -15 \checkmark$

$k = \frac{50}{3}$

⑥ (3) $-\frac{2}{3}y = -11(3)$

check $-\frac{2}{3}(\frac{33}{2}) = -11$
 $-11 = -11 \checkmark$

$-2y = -33$

$y = \frac{33}{2}$

⑦ $-8 + d = 13$

check $-8 + (21) = 13$
 $13 = 13 \checkmark$

$d = 21$

⑧ $e - 4 = -32$

check $(-28) - 4 = -32$
 $-28 - 4 = -32$
 $-32 = -32 \checkmark$

$e = -28$

⑨ $44 = \frac{2}{3}f$

check $44 = \frac{2}{3}(66)$
 $44 = 44 \checkmark$

$f = 66$