

Syllabus

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Solving Linear Equations

fractions:a fraction is a ratio represented by $\frac{\#}{\#}$ or decimal0.4, 0.4, 0.46operations① Additions

$$\frac{1}{2} + \frac{1}{2} = \frac{1+1}{2} = \frac{2}{2} = 1$$

$$\frac{1}{2} + \frac{1}{4} = \frac{2+1}{4} = \frac{3}{4}$$

$$\frac{2}{3} + \frac{1}{4} = \frac{6+3}{12} = \frac{9}{12} = \frac{3}{4}$$

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$$\frac{1}{8} + \frac{1}{5} = \frac{5+8}{40} = \frac{13}{40}$$

$$= \frac{5}{40} + \frac{8}{40} = \frac{5+8}{40} = \frac{13}{40}$$

Subtraction

$$\frac{1}{2} - \frac{1}{4} = \frac{2-1}{4} = \frac{1}{4}$$

$$= \frac{2}{4} - \frac{1}{4} = \frac{2-1}{4} = \frac{1}{4}$$

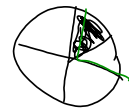
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$$\frac{3}{5} - \frac{1}{4} = \frac{12-5}{20} = \frac{7}{20}$$

$$\frac{2}{20} - \frac{5}{20} = \frac{12-5}{20} = \frac{7}{20}$$

③ Multiplication

$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$



$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20} = \frac{3}{10} = 0.3$$

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20} = \frac{3}{10}$$

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Division

$$\frac{1}{2} \div \frac{1}{4} = \frac{4}{2} = 2$$

How to solve:

① Flip the second fraction

② change from $\div$ to $\times$

$$\frac{1}{2} \times \frac{4}{1} = \frac{4}{2} = 2$$

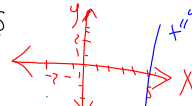
$$\frac{1}{3} \div \frac{2}{5} = \frac{1}{3} \times \frac{5}{2} = \frac{5}{6}$$

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Ex 1) $-7x - 3x + 2 = -8x - 8$ What is an equation?

equation is mathematical sentence has = symbol

$$x = 5$$



$$-7x - 3x + 2 = -8x - 8$$

$$-10x + 2 = -8x - 8$$

$$+8x \quad +8x$$

$$-2x + 2 = -8$$

$$-2x = -10$$

$$x = 5$$

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Ex 2) $2x - 1 = \frac{3}{4}x + 9$

$$\frac{8}{4}x - 1 = \frac{3}{4}x + 9$$

$$\frac{8}{4}x = \frac{3}{4}x + 10$$

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

$$\frac{8-3}{4}x = 10$$

$$\frac{5}{4}x = 10$$

$$1.25x = 10$$

$$x = \frac{10}{1.25} = 8$$

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Solve for X $2x - 1 = \frac{3}{4}x + 9$

Another way

multiply each term by 4

$$4(2x) - 1(4) = 4\left(\frac{3}{4}\right)x + 9(4)$$

$$8x - 4 = 3x + 36$$

$$-3x \quad -3x$$

$$5x - 4 = 36$$

$$+4 \quad +4$$

$$5x = 40$$

$$\frac{5x}{5} = \frac{40}{5} \rightarrow x = 8$$

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Ex 3) $4(x+3) - 4 = 2 + 8\left(\frac{1}{2}x + 1\right)$

$$4x + 12 - 4 = 2 + 4x + 8$$

$$4x + 8 = 4x + 10$$

$$-4x \quad -4x$$

$$8 \neq 10 \quad \text{Undefined}$$

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