

Name(s): KEY

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Work with partners in groups of 2-4. This is required.

1. Solve the following equations.

(a) $3(2-x) = 2x-1$

$$6 - 3x = 2x - 1$$

$$7 = 5x$$

$$\boxed{x = \frac{7}{5}}$$

(b) $\frac{3}{2}x + 2 = \frac{1}{2} - \frac{1}{2}x$

$$\frac{3}{2}x + 2 = \frac{1}{2} - \frac{1}{2}x$$

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

$$2x = -\frac{3}{2}$$

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

(c) $\frac{x+1}{3} + \frac{x+2}{7} = 2$

$$\frac{7(x+1) + 3(x+2)}{21} = 2$$

$$7x + 7 + 3x + 6 = 42$$

$$10x + 13 = 42$$

$$10x = 29$$

$$\boxed{x = \frac{29}{10}}$$

* alternative ways to do this one, but should give you the same answer

(d) $\frac{2}{y} + \frac{4}{y} = 3$

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

$$\frac{6}{y} = 3$$

$$\frac{y}{6} = \frac{1}{3}$$

$$\boxed{y = \frac{6}{3} = 2}$$

$$(e) \frac{x}{x-2} + 3 = \frac{2}{x-2}$$

$$\frac{x}{x-2} + 3 = \frac{2}{x-2}$$

$$x + 3(x-2) = 2$$

$$x + 3x - 6 = 2$$

$$4x = 8$$

$$x = 2$$

no solution

$$D = \{x \mid x \neq 2\}$$

Alternative:

$$\frac{x}{x-2} + 3 = \frac{2}{x-2}$$

$$\frac{x}{x-2} - \frac{2}{x-2} = -3$$

$$\frac{x-2}{x-2} = -3$$

$$1 \neq -3 \therefore \text{no solution}$$

2. Solve for x , where a , b , and c are constants:

$$\frac{a}{x} + \frac{b}{x} = c$$

$$\frac{a+b}{x} = c$$

$$\frac{x}{a+b} = \frac{1}{c}$$

$$x = \frac{a+b}{c}$$

This represents a general solution!

Compare this to (d)! $a=2, b=4, c=3: \frac{2+4}{3} = 2 \checkmark$

3. Find b such that $x=2$ is a solution to

if $x=2$ is a solution then

$$2 + 2b = 2 - 4 + 2b(2)$$

Then

$$2 + 2b = 2 - 4 + 4b$$

$$2 + 2b = -2 + 4b$$

$$4 = 2b$$

$$b = 2$$